CLINICAL PSYCHOLOGY OF EXCEPTIONAL CHILDREN

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CLINICAL
PSYCHOLOGY
of Exceptional Children

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CLINICAL PSYCHOLOGY

Of Exceptional Children

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THIRD EDITION

HARPER & BROTHERS PUBLISHERS NEW YORK

CLINICAL PSYCHOLOGY OF EXCEPTIONAL CHILDREN

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49 East 33rd Street, New York 16, N.Y.

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This book was formerly published
under the title of *Clinical Psychology
of Children's Behavior Patterns.*

Bureau Ednl. Psy. Research
DAVID HARE TRAINING COLLEGE
Dated 16. 7. 59
Accs. No 1414

Library of Congress catalog card number: 57-6264

Contents

PREFACE xi

1. INTRODUCTION 1
2. NORMAL CHILD DEVELOPMENT 9
3. CLINICAL PSYCHOLOGICAL TESTING 47
4. MENTAL DEFICIENCY OR FEEBLE-MINDEDNESS 86
5. SCHOOL RETARDATION 142
   Harold F. Powell, *Wayne State University*
6. SPECIFIC DISABILITIES IN SCHOOL SUBJECTS 159
   Harold F. Powell, *Wayne State University*
7. THE GIFTED CHILD 197
   Victor Goertzel and Mildred G. Goertzel, *Fountain House Foundation*
8. ANXIETY AND PROBLEM BEHAVIOR 232
   Michael M. Reece, *Wayne State University*
9. ANXIETY AND PROBLEM BEHAVIOR (CONTINUED) 280
   Michael M. Reece, *Wayne State University*
10. JUVENILE DELINQUENCY 341
11. SPEECH DEFECTS 391
   Jack Matthews, *University of Pittsburgh*
12. SENSORY DEFECTS 425
   David H. Crowell, *University of Hawaii*
13. NEUROLOGICAL AND PHYSICAL DISABILITIES 492
   David H. Crowell, *University of Hawaii*

INDEX OF NAMES 551

INDEX OF SUBJECTS 562

List of Tables

1. Weight-Height-Age Tables 16, 17
2. Observed Hours of Sleep of Children at Different Ages 21
3. Age Increase in Point Scores on the Arthur Performance Scale 25
4. Credits on 1937 Stanford-Binet Test 55
5. Mental Age Standards for the Different Grades 57
6. Effects of Pelvic X-ray Irradiation of Pregnant Women on Their Children 94
7. Fernald's Ten "Fields of Inquiry" 100
8. Diagnostic Signs of Mongolism 109
9. Economic Status of Subnormal and Normal Groups 127
10. Types of Occupation of Subnormal and Normal Groups 128
11. Occupations Suitable for Various Mental Ages 132
12. Percentage of Acceleration and Retardation in Thirty-six City School Systems 143
13. Amount of Retardation of Sixth-Grade Children 143
14. Teachers' Reasons for School Failures 145
15. Theoretically Expected Retardation 147
16. Change in Eye Movements in Reading with Advance in Grade 166
17. Defects in Writing and Their Causes 185
18. Minimal Mental Ages for Arithmetic Processes 188
19. Frequency of "Referral Problems" in Metropolitan Child Guidance Centers 235
20. Reported Incidences of Masturbation 304
21. Central Registration of Juvenile Delinquents in Washington, D.C. 1943–4 343
22. Arrests by Age Groups: 1953 345
23. Juvenile Delinquency Cases Reported: 1950–1952 345
24. Juvenile Delinquency Cases and Child Population: 1940–1952 346
25. Typical I.Q. Distributions of Juvenile Delinquents 350
26. Average I.Q.'s of Juvenile Delinquents 350
27. Personality Structural Categorization of Juvenile Delinquents 353
28. Attitudes Toward School of Delinquents and Nondelinquents 354

29. Nature of Employment of Delinquents 355
30. Percentage of Companionship in Commission of Delinquencies 355
31. Age of Onset of Delinquency 357
32. Parental Nativity of Juvenile Delinquents 358
33. Economic Status of Families of Delinquents 360
34. Conduct Standards in Homes of Delinquents and Nondelinquents 361
35. Broken Homes and Juvenile Delinquency 362
36. Percentage of Children in Age Groups in Which Broken Families First Occurred 363
37. Parent-Child Attitudes of Delinquents and Nondelinquents 364
38. Delinquent Boys' Attitudes Toward Home 365
39. Nature of Parent-Child Conflicts Among Delinquents 365
40. Percentage Distribution of Church Attendance of Juvenile Delinquents 368
41. Incidence of Types of Speech Defects 394
42. American English Consonants Classified According to Manner and Place of Articulation and Presence or Absence of Vocal Cord Vibration 399
43. Percentage of Visual Loss for Various Acuity Fractions 432
44. Causes of Defective Vision Among Partially Seeing Pupils 434
45. Causes of Blindness Among 4,248 Braille Reading Students 439
46. Intelligence of Visually Defective Children 442
47. Hayes-Binet Intelligence Test Scores in 17 Residential Schools for the Blind 443
48. Distribution of Interim Hayes-Binet I.Q.'s at the Perkins Institution 444
49. Distribution of Wechsler-Bellevue Verbal I.Q.'s at the Perkins Institution 444
50. School Enrollment by Sex, Hearing Impairment, and Type of School 462
51. Psychological Patterns Characteristic of Peripheral Deafness, Aphasia, Psychic Deafness, and Mental Deficiency 462
52. Relation between Intelligence and Hearing Loss 465
53. Test Performance of Hard-of-Hearing Children 465
54. Intelligence Test Results for the Deaf 468
55. Distribution of Intelligence at the Indiana School for the Deaf 472
56. Summary Data for Pupils taught by Acoustic, Oral, and Normal Methods 474
57. Review of Studies on Personality and Adjustment of the Deaf 478
58. Review of Studies on Epilepsy and Personality 507
59. Summary of Studies on Intelligence of Postencephalitic Children 513
60. Analysis of Vision, Hearing, and Speech Impairments of Cerebral Palsied Children 518
61. Normal Development Compared with Average Development of Cerebral Palsied Children 518

62. Comparison of Studies on Intelligence Levels of Cerebral Palsied Children 521
63. Comparison of Dunbar's Characteristic Pictures of the Diabetic and Rheumatic Fever Picture 534

List of Figures

1. Growth Curves for Height and Weight 14
2. Pintner-Patterson Performance Scale 64
3. Healy Picture Completion Test II 66
4. Social Maladaptation of a Feebleminded Woman 121
5. Relations of Language Abilities 161
6. Eye Pauses of a Good Sixth-Grade Reader 165
7. Eye Pauses of a Poor Sixth-Grade Reader 165
8. Mirror Writing 186
9. Cross Section of the Human Eye 428
10. Snellen Visual Acuity Test Charts 431
11. Diagram of Light Rays in Refractive Errors 435
12. Longitudinal Section of the Ear 452
13. The Audiogram 455
14. Classification of Electroencephalograms 500
15. Normal Development Compared with Average Development of 100 Cerebral Palsied Children 517

Preface

IT IS just twenty years since the first edition of this book was published. In that edition, and in the second published ten years ago, the emphasis was on children's deviant behavior. This continues to be the concern of the present edition. During these twenty years clinical psychology has developed rapidly as a profession; its techniques for diagnosis and treatment have been enlarged and improved, the areas of its interest have widened especially in relation to neurotic and psychotic adults, and the membership in the profession has multiplied several times. These changes mean that a general textbook in clinical psychology will be very different today than two decades ago. For this edition the decision was made to revise in a specialized direction in which the behavior problems of children who deviate from normal in some respect would be the central concern, but the discussion of such problems would be from the point of view of the interests of the clinical psychologist.

Inasmuch as I have not been directly engaged in work with children for many years I invited five younger colleagues to contribute chapters on topics which are their particular special interests. These psychologists, Drs. David H. Crowell, Victor Goertzel, Jack Matthews, Harold F. Powell, and Michael M. Reece, were given complete freedom to revise their material to whatever degree or in whatever direction they felt desirable. This I believe they have done well.

As primary attention in this revision is on the problems of exceptional children, there are a number of major changes. A chapter summarizing normal development replaces the earlier discussion of the nature of problem behavior and in part the description of the content of the case history. The chapters in earlier editions on personality and conduct problems have been replaced by chapters which deal with emotional and social deviating behavior as related to anxiety. The chapter on treatment has been omitted because it seemed better with the changed emphasis to deal with this in connection with the several special conditions.

I appreciate the encouragement of the publisher to prepare this revision. Finally, I wish to acknowledge the help I have received from my wife during many hours of discussion, for her encouragement, and for her patience in the endless typing of drafts and the final manuscript.

C. M. Louttit

Detroit, Michigan
March, 1956

I wish to express my personal appreciation to Dr. Michael Reece of Wayne State University for his kindness in offering to read proof and to assume responsibility for the many details involved in completing manuscript for publication. Because of the sudden death of Dr. Louttit his effort has been invaluable and he has my sincere gratitude.

Laura Talcott Louttit

Detroit, Michigan
October, 1956

CLINICAL PSYCHOLOGY

of Exceptional Children

Chapter

1

Introduction

WHILE the behavior of his fellows was most certainly of interest and concern to man long before the dawn of recorded history, it was examined more systematically in the thinking of the Oriental and Greek philosophers. It is, however, a matter of scarcely a century since behavior has been the subject of investigation by scientific methods. Psychology as a science began its separation from philosophy only in the middle of the nineteenth century. Since then its development has not only been in the direction of science, but the discoveries and interpretations have found application in many areas of human affairs. It is clinical psychology, one of the areas of application, that is of interest to us in this book.

Clinical psychology is that area of applied psychology which is concerned with the behavior adjustment of the individual. Watson (*5*) emphasizes this in two statements which are worth quoting: "The clinical method has as its one invariant, omnipresent aim the assistance of an individual in distress regardless of the field in which the difficulty occurs," and further, "The clinical method in psychology as conceived today is the application of psychological principles and techniques to the problems of an individual." The emphasis on the individual is the characteristic of clinical psychology about which there is little question. Beyond this, as Rotter (*4*) points out, the rapid changes taking place in this subject make it impossible "to present a generally accepted definition of the discipline or limits of clinical psychology or of its relationships to other applied sciences." The many definitions which have been proposed during the past half century show extremes of variation that indicate the lack of general acceptance.

A succinct but comprehensive definition adopted twenty years ago by the Clinical Section of the American Psychological Association (*6*) is still, with minor modifications, a serviceable statement. "Clinical psychology is a form of applied psychology which aims to define the behavior capacities and behavior characteristics of an individual through methods of measurement, analysis, and observation; and which, on the basis of an integration of these findings with data received from the physical examinations and social histories, gives suggestions and recommendations for the proper adjustment of the individual." It is to be noted that developments during the years since this statement was published, and particularly the activities of psychologists during and since World War II, force a modification of the last clause to provide for the psychologists' active participation in psychotherapy or other adjustment methods instead of merely making "suggestions and recommendations." Also in modern terms "behavior capacities and behavior characteristics" may be equated to personality and personality dynamics.

History. Clinical psychology as a specialized aspect of applied psychology has been influenced by a number of trends in psychology, but its origin can be precisely dated. In 1896 Witmer (*19*, *20*) presented to the meetings of the American Psychological Association a series of proposals concerning the practical investigation of problems of school children which utilized methods available from the psychological laboratories. The immediate occasion for these proposals was the examination of a child in the psychological laboratory at the University of Pennsylvania. The study of this child and of several others soon afterward gave birth to what Witmer later called "clinical psychology." There is little evidence that these proposals found response among the psychologists of that day. A decade later, in an editorial inaugurating his journal, the *Psychological Clinic*, Witmer (*21*) briefly described the occasion of his starting a psychological clinic, and something of its subsequent history.

Although Holmes (*13*) described the clinic and its work as it functioned in 1912, Witmer himself has never described in any great detail the organization of his own clinic or the methods he used. The basic ideas of the originator of clinical psychology are to be found in a series of papers from 1907 to 1925, in which are discussed certain details of clinical methods and their author's psychological systematization underlying clinical investigation. Witmer was interested in the school child, and the task of clinical psychology was to describe and evaluate the child's behavior according to certain analytic categories (*22*, *23*), and to discover the reasons for deviations. Once this was done, special programs could be devised to improve the behavior.

While the beginnings of clinical psychology must always be associated with Witmer, it is true that trends and events during the late nineteenth and early twentieth centuries influenced its development. In fact, it is probably true that Witmer's direct influence on present-day activities in the clinical field is less than his pioneering work gave promise of. Among the major events or factors which have contributed to the development of clinical psychology several deserve special mention. The publication in 1905 of the Binet-Simon scale (*8*) for measuring intelligence introduced the measuring tools which have had so important a part in clinical procedures. The study of the feeble-minded at the laboratory of The Training School at Vineland, N.J., established in 1906 (*10*), introduced psychological appraisal of this special group. Healy (*12*) in 1909 started a behavior clinic at the Cook County (Chicago) Juvenile Court for the study of juvenile delinquents. In the later years of the nineteenth century a functional point of view being introduced into psychiatry culminated in the psychoanalytic theories of Freud, which have had an extensive influence not only in psychiatry but in the development of important fields of investigation in scientific as well as in applied psychology. In 1909 Clifford W. Beers (*7*) founded the National Committee for Mental Hygiene which supported a mental hygiene movement concerning itself with all aspects of the problem of human adjustment.

These, and many other factors of less prominence, contributed to the totality that one now thinks of as clinical psychology. Before World War II much of the interest and attention was to the problems of children (*14*). The needs of the military services for personnel screening methods and for rehabilitative techniques required the services of psychologists, as have the neuropsychiatric and counseling services of the Veterans Administration since the war. As a result much of the attention of clinical psychologists has been devoted to the problems of adults and the more recent history has a different emphasis as Watson (*18*) has shown. At the same time there is increasing concern with the scientific and theoretical bases of clinical practice. Rotter (*4*) has formulated a behavior theory which emphasizes social learning but has its source in experiences from clinical psychology. This is an example of the maturity of the field which has changed and enlarged so greatly during the first half of the twentieth century.

Problems and procedures. While clinical psychologists have contributed to discussions of personality and general behavior theory it is the practical activities of the discipline that are of interest to us in this text. As earlier mentioned the clinical psychologist is concerned with evaluating an individual's behavior adjustment, inquiring into the sources of his present behavior, predicting his future behavior, and assisting the individual to modify his behavior to the end of its being more acceptable and satisfying. While in actual practice individuals toward whom clinical attention is directed usually have adjustment problems of greater or lesser degree this is not a necessary requirement for warranting clinical study. Thus, planning of educational or vocational programs to meet the needs of an individual is a clinical task although no question of maladjustment is involved.

In carrying out its companion tasks of evaluating and modifying behavior, clinical psychology utilizes diagnostic and treatment procedures. It is not always possible to make a clear distinction between these. Play therapy, for example, serves both a diagnostic and a therapy function. The counseling interview gives the psychologists opportunity for greater understanding of the client, as well as serving to facilitate changes in his behavior. Certain clinical tests, while ordinarily considered diagnostic instruments, may serve to stimulate self-insights which are an integral part of therapy. Therefore the distinction between the two procedures is not absolute, but is convenient in discussion.

Traditionally the appraisal of present behavior is based in large measure upon the performance on testing instruments of a variety of sorts. As described in Chapter 3 these include tests of intelligence or general ability, aptitudes, achievement, personality traits, personality patterns, social behavior, emotional maturity, and so on. The requirements of diagnosis, however, go beyond the accumulation of test scores. These are only measures of adjustment in specific areas. The adequacy of adjustment is also influenced by emotional factors, by reactional biography, and by the dynamics of personality organization; diagnosis must appraise all such factors and the nature of their integration.

Logically the first step in making a diagnosis is the determination of the individual's behavior at the moment. This must be so because no psychological problem can ever be known except as it becomes evident in overt behavior, whether it appears in school, in play or work, in home adjustments, in obedience to parental or legal authority, in social skills, in speech, or what not. It is necessary that the psychologist get a first-hand picture of the child's behavior. This may have to be limited to behavior during the testing procedures—incidentally, the well-observed test performance may be very revealing—or, if conditions are more favorable, more extensive observation may be made under controlled or uncontrolled living conditions.

As the examiner's opportunity to observe the child is usually limited, it is necessary to secure behavior pictures from parents, teachers, and others. In addition to such reports, the history is important in giving possible clues to etiology. The aspects of the child's life included in this history are many—family, birth, early development, medical and physical condition, socioeconomic status, and the like. The end point of diagnosis is the assembling and integrating of all available information in order to afford an understanding of the individual upon which guidance can be based. The information secured by testing, interview, observation, and from others can be interpreted only within the clinician's own knowledge of the expected course of child development. In the chapters of this book such background information on a variety of conditions which are our concern is presented.

The second major clinical procedure is concerned with efforts to facilitate the individual adjustment. Whether such activities are called therapy, reëducation, counseling, guidance, special education, correction, or rehabilitation is of little moment. The procedures are always designed to establish more adequate and acceptable behavior. Since all human behavior, including that for which help is sought, is the integrated summation of experience, it follows that two avenues for treatment are possible. Either the environment can be manipulated to provide the possibility of new experiences, or the already established personality may be manipulated to eradicate the persistent—and undesirable—results of earlier experiences. Which of these possibilities is to be used can be determined only by an adequate diagnostic interpretation of each patient. Other things being equal, it is probable that environmental manipulation, including the changing of parental attitudes and their methods of dealing with the child, is indicated more frequently for children, and personality manipulation for older persons. While reëducation, corrective procedures, or treatment procedures have in recent years been of great concern to clinical psychologists there is no universal method which will ensure successful adjustment. What course of action is to be taken depends on such factors as the nature of the child's problem, the situation in which he must be dealt with, the coöperativeness of parents, teachers, or others, the child's own ability and personality, and so on. The complexities of carrying on corrective procedures or of making recommendations for management, however, do not relieve the psychologist from the responsibility of utilizing his understanding in helping the child. The different groups of behavior deviation dealt with in succeeding chapters require a wide range of treatment or corrective measures. It has appeared more desirable to discuss such procedures in the proper place rather than to devote special attention to a general discussion of treatment procedures.

Areas of use of the clinical method. As earlier pointed out, clinical psychology is concerned with behavior adjustment of individuals. Thus its methods may be used in a wide variety of situations. Pennington and Berg (*3*) include chapters on behavior problems of children, mental retardation, marriage problems, psychosomatic conditions, physically handicapped, speech disorders, psychoneuroses and psychoses, criminals, and problems of old age. To this array Watson (*16*) adds papers on vocational guidance, school guidance, college student personnel services, and points out the work of clinical psychologists in nursery schools, in chronic-disease hospitals, and in social work agencies. Rubinstein and Lorr (*15*) have collected descriptions of the work of psychological clinics in such institutions as mental hygiene and psychiatric clinics, college guidance centers, courts and penal institutions, school systems, psychiatric institutions, the Veterans Administration, Army, Navy, Air Force, and Public Health service. Lists such as these can do no more than illustrate the scope of the activities of clinical psychology. It is evident from them that this scope is a wide one. The present book is concerned with only a limited section of the total field, specifically with children who deviate from the usual or normal in some way which has behavioral significance.

Exceptional children. In common language the term "exceptional child" is often used exclusively to refer to children who are superior in intelligence or in some special talent. However, this limitation is not part of the technical meaning of the term in education or psychology. The *Dictionary of Education* (*11*) uses the synonym of "child, atypical" and defines it as "a child who deviates markedly above or below the norm of his group in respect to one or several mental, physical, or social traits, or any combination of these, so as to create a special problem in regard to his education, development, or behavior." It is children who would come within this definition who are the subjects considered in the following chapters.

Whether one is interested in mental ability, school achievement, emotional maturity, social behavior, or physical capabilities one finds that most children fall within a range of measures that are considered normal. There are some, frequently many in absolute numbers, who deviate beyond the normal range. It is this group who present special problems of adjustment, and who may be helped by clinical study and recommendations. Very often the deviation is not limited to the mental, social, or physical realm only, but there are significant relations among these. The feeble-minded child is not only of subnormal intelligence, but he has problems of social and educational adjustment. The limitations imposed by severe cerebral palsy may conceal a normal or even superior mental ability (*9*). Anxiety may be reflected in school work or in delinquency. It is the task of the clinical psychologist who works with exceptional children to study all aspects of the particular child to the end of improving his adjustment and future development.

In this text special attention is directed toward nine groups of exceptional children. The first four of these are related to ability, including the subnormal and the gifted, and those children who show retardation in school progress or in special subjects. Secondly, four chapters are devoted to children who show deviation in social behavior and personality directions. Behavior problems, while usually evident in behavior observable by others, are grounded in the child's own personality development. These show themselves in a variety of ways that are of concern to parents, teachers, and often to the child himself. The delinquent is actually only a member of a special group of deviants in this class whose behavior has particular significance to society at large. Finally, children with speech defects are dealt with separately because of the importance of speech behavior in our culture. In the last category children with physical handicaps are considered. Visual and auditory defects, crippling conditions, and debilitating systemic diseases all constitute conditions which influence child development and present special problems to the individual's personality and behavioral adjustment.

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Chapter

2

Normal Child Development

IN THE succeeding chapters of this book attention is devoted to a variety of exceptional children defined in the last chapter as children who deviate in some way from physical, mental, or behavioral norms. While normal can seldom be defined in precise quantitative terms there are ranges in motor and sensory abilities, in intelligence, in educational achievement, in emotional control, in social behavior, and in other aspects of behavior within which the majority of children fall. In our society children falling within these ranges are considered normal. So that the later discussions of deviant behavior of a variety of exceptional children may be seen in perspective this chapter will be devoted to a very brief summary of the usual or normal course of child development.

OVERALL NATURE OF CHILD DEVELOPMENT

If the reader will take a moment to consider himself at his present age—his size, his skills and knowledge, his hopes and desires, his friendships and social relations of all sorts, in short all those things that he recognizes as characteristic of him—and contrast himself with the infant he was sometime ago, he cannot help appreciating the importance of development. Although the period of intrauterine life is important developmentally (Carmichael, *2*) we can begin our interest at birth. Newborn babies appear to casual observation pretty much the same.

True, they differ in size, in coloring, in activity, and in other ways but all spend their time in sleeping, eating, and uncoördinated movement. Except in the case of severe pathology, the first few days of life give little promise of the nature of the five-year-old child or the twenty-year-old adult. However, closer observation reveals differences among infants, and years of research on heredity and intrauterine influences have shown that there are very real individual characteristics which form the basis upon which all future development depends.

The details of the mechanism of heredity, which are clearly and simply described by Teagarden (*65*), need not detain us. It is sufficient to understand that the fertilized ovum from which the infant develops carries 24 pairs of chromosomes, one member of each pair having been from the father and one from the mother. The genes, which make up the chromosomes, in complex interrelations determine the anatomical and physiological characteristics of the organism, and indirectly many behavioral traits. The color of skin, eyes, and hair are easily observable gross anatomical characteristics which are genetically determined. The chemical, neural, muscular, and glandular mechanisms necessary for respiration, digestion, metabolism, circulation, and similar physiological processes are functioning at or before birth. Such functions are determined by heredity. Finally the biological processes of growth and maturation are genetically controlled even though their continuance depends upon contributions from the environment.

It is important also to recognize that, while the foetus develops in the protected environment of the mother's uterus, there are disturbances possible which may result in anatomical or physiological abnormalities in the infant. Developmental failures in the very earliest stages of cell division following fertilization, or at a later period in embryonic growth may result in a wide variety of abnormalities of structure or function. These may be so severe that the organism cannot live, and they range to conditions of Siamese-twin joining, lack of parts or organs, or very possibly physiological dysfunction not readily observable to casual observation. Infectious conditions in the mother, notably syphilis and measles, and certain poisons such as lead, carbon monoxide, or possibly alcohol, may traverse the placental blood vessel complex from mother to child with untoward effects on embryonic or foetal development. These are only suggestions of nonhereditary but intrauterine conditions which may have an influence on foetal growth resulting in an infant which is not biologically adequate and therefore which may not be able to develop behaviorwise in a normal fashion. Finally, there should be mentioned the effects of birth injuries, primarily of a sort which produce some degree of cerebral anoxia or oxygen lack which results in neural pathology showing itself in motor paralyses as in cerebral palsy and/or mental deficiency of varying degrees.

At birth the human infant is an immature organism. The vital processes—respiration, digestion, circulation, waste elimination, and the like—are functioning, but the arms and especially the legs are obviously underdeveloped, movements are limited and incoördinated, locomotion is impossible, and the infant is dependent upon others for food and welfare. Growth in size and maturation of organs and organ systems continue the developmental process begun in the uterus. The detailed aspects of maturation are biologically determined by hereditary influences operating in an adequate biochemical environment. Important as the biological maturation of the infant is, it is only the basis from which, or the matrix out of which, behavioral or psychological growth comes. Normal behavior development depends upon an adequate biological organism but its extent and complexity result from other influences. The very dependency of the human infant ensures that its continued existence depends upon others—the mother or mother surrogate in the earliest years. Thus from birth the child's behavior must be formed in interaction with others; it is from the beginning subjected to social influences. The parents, siblings, other children, neighbors, the school, formal and informal social groups, fellow workers, friends, the whole gamut of other people with whom the individual comes into contact are throughout childhood and adult life important influencers of psychological being.

This brief overview may be summarized by saying that the course of the child's behavior development and the nature of the adult's psychological maturity are a resultant of biological and social factors interacting in a continuing, complex fashion. The course of this development in the usual case is our concern in this chapter, while the behavior resultants of lacks and distortions among the factors and their relations are basic to the "exceptional" conditions discussed in other chapters.

Stages of Childhood

The physical and behavioral development briefly introduced in the preceding section is ordinarily considered as characteristic of the ages between birth and adulthood. It is well to point out that physical and behavioral changes are taking place throughout life—in one sense there is continued development although in later years it is likely to be considered a decline. As the subject matter of this book is children we need not be concerned with changes at older ages. The growth of the child from infancy to adulthood must be considered a series of changes, one flowing from an earlier without breaks in the sequence to mark time intervals. As a matter of convenience, however, six periods bounded by approximate chronological ages are commonly distinguished as marking stages of childhood. In the following description the age boundaries must not be considered absolute but as being approximate within perhaps ten percent.

Neonate. This is the period from birth to two weeks during which the child spends its time eating and sleeping. Continued maturation of the neuromuscular system occurs but there is a minimum of psychological interaction.

Infancy. To the age of two we think of the child as an infant. Biological growth and maturation continue. A wide variety of behaviors develop—speech, walking, changes in eating methods, elimination control to some degree, definite reaction to other persons, and a host of things learned.

Preschool age. Between two and five years the development of the earlier periods continues while the child increases skills, learns vocabulary and other knowledge items, establishes wider social contacts in nursery schools and kindergartens or with neighborhood children, becomes more and more an individual.

Childhood. From five to eleven most American children are in the elementary school. Growth continues but the basic motor coördinations have been established, and they are applied in new situations. Knowledge and social learning increase enormously within the framework of the formal school, and of the customs and opportunities of the home and subculture of the child.

Preadolescence. The three years from eleven to thirteen for most children include puberty or the point when gonadal endocrine changes, which are biologically determined, result in the appearance of secondary sex characteristics. These biological changes introduce new drives and affect social interactions, which are important in the next period.

Adolescence. The period of adolescence, from age thirteen or so to young adulthood, is a period in which the individual is confronted with a complex of demands. His own interests and activities, as well as the expectancies of parents or others concerning his behavior, change with unexpected suddenness from those of a child to those of an adult. Biological growth in size and in physiological maturation reaches its maximum in this period usually in the older years. Either the beginnings of a vocational career or further advanced schooling influence the social and intellectual growth.

It must be emphasized again that age divisions such as those just listed are a convenience and are meaningful primarily in relation to our own culture. The processes of development are continuous in time although particular aspects may be more prominent at one age than at another. In a second dimension developmental processes may be divided into special aspects for convenience although here also it must be fully appreciated that the aspects are not separated in the living child. Behavior development is an integrated on-going process in which physical, emotional, social, and personality growth are interrelated in a unitary behavior complex which is the unique self of the individual.

With this caution in mind we shall devote the balance of this chapter to a discussion of development of five aspects of the individual: bodily growth and maturation, intelligence and abilities, emotions, social behavior, and finally personality. The purpose of this discussion is not to review the total field of child psychology but to present a sufficient outline of the course of normal development so that the behavior of "exceptional" children may be judged against the usual expectancies.

PHYSICAL GROWTH

Basic to normal behavior development is the child's physical growth and well-being. The change in size is striking. From the infant of seven or eight pounds and scarcely two feet in height to the young adult something over five feet tall and weighing over 100 pounds there is a major change indicating the global result of biological growth factors utilizing food, water, and air in the building up of new tissue. Growth in size does not proceed in equal units each year nor are the growth rates for parts of the organism equal. The general nature of the growth curve for height and weight can be seen in Figure 1. Average age-height-weight measures are shown in Table 1. The differential growth rates of body parts and organs are important, but are too detailed to review here; the reader will find a summary by Helen Thompson (70) an excellent orientation.

While the increase in gross size of the organism has very real behavioral significance those changes of growth usually spoken of as maturation are perhaps of greater interest. From the fertilization of the ovum there is continual cell division leading to differentiation of tissue, development of organs and organ systems, and the beginnings of physiological and anatomical function of the organs. Growth in size and maturation of organs and functions characterize intrauterine life, but they do not stop at birth. In varying degrees the same processes continue in the infant and child. The maturation of the neuromuscular system in the neonate and infant is made evident in the observable sequence of motor patterns which are common in normal development. In fact certain of these patterns can be used as approximate indications of normality in growth.

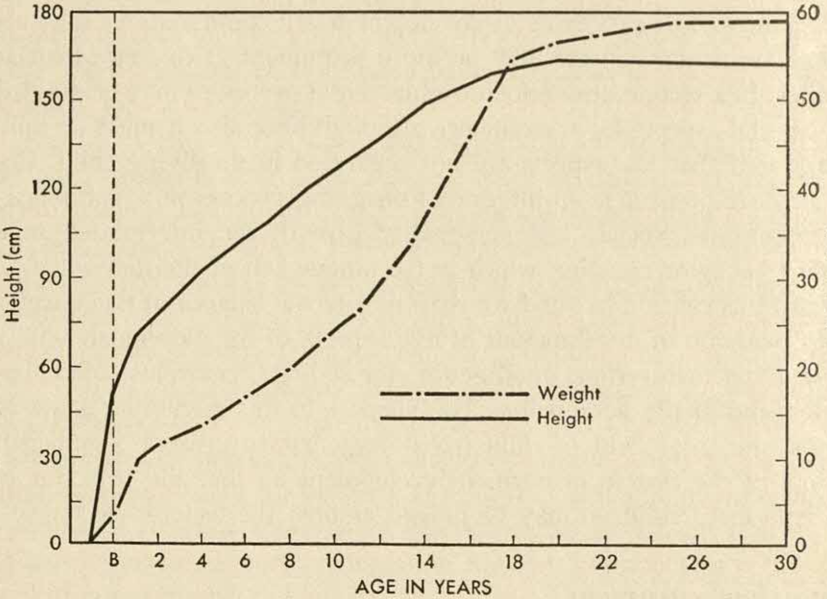

FIGURE 1. Growth Curves for Height and Weight. Reprinted with permission from Carmichael (ed.). *Manual of Child Psychology*, John Wiley & Sons, Inc.

Growth in size and maturation of parts and functions are basically the products of hereditary biological determiners. However, environmental factors have important influences. The body cannot increase in size without a sufficient supply of materials from the environment to be converted into new tissue. Neither can the developing motor coördinations resulting from neuromuscular maturation become perfected without opportunity for practice—thus learning is an important adjunct to maturation. In the following discussion of physical growth this close dependence of biological and environmental factors on each other must be kept in mind.

Growth in Size

Increase in height and weight are indications of physical growth that are of interest to parents and child alike. While growth rates of legs, arms, head, trunk, and special organs differ among themselves, and while there are evident individual differences in the overall growth of different children, the pattern of body size changes is a useful indication of the normalcy of the child's growth.

In general, body size increases at a rapid rate in infancy, the rate slows down during childhood, and then usually has a spurt during adolescence, to reach a maximum between 18 and 20 years of age. The shape of the growth curve is shown in Figure 1 from Thompson (*70*) who has thus plotted data from Boyd's (*11*) study of body surface area. The slow rate in childhood and spurt in adolescence is clearly evident in the case of weight, but not so evident in height.

Norms of height and weight, which must be used cautiously, are available from measurement of many children. The usual height-weight table is given in Table 1. It is to be emphasized that the interpretation of weight must take height as well as age into account. Inasmuch as weight is a function of the cube of height it cannot be expected that the short child will weigh as much as the tall child of the same age. In large measure the height correlates highly with the length of the long bones, which in turn is determined mainly by genetic factors. Fairly large variation from the weight for height and age is considered normal. However, 7 percent or more underweight, or 20 percent or more overweight suggests some unusual condition and should be a sign that medical attention is desirable.

Maturation

Maturation has earlier been distinguished from the increasing gross body size as referring to the physiological and anatomical changes in organs and organ systems which result in the establishment of their full function. The eruption of teeth, the ossification of bone, the changes in endocrine glands are all examples of organ maturation. For our

TABLE 1. Weight-Height-Age Table for Boys[a]

Height Inches	5 Yr.	6 Yr.	7 Yr.	8 Yr.	9 Yr.	10 Yr.	11 Yr.	12 Yr.	13 Yr.	14 Yr.	15 Yr.	16 Yr.	17 Yr.	18 Yr.	19 Yr.
38	34	34													
39	35	35													
40	36	36													
41	38	38	38												
42	39	39	39	39											
43	41	41	41	41											
44	44	44	44	44											
45	46	46	46	46	46										
46	47	48	48	48	48										
47	49	50	50	50	50	50									
48		52	53	53	53	53									
49		55	55	55	55	55	55								
50		57	58	58	58	58	58	58							
51			61	61	61	61	61	61							
52			63	64	64	64	64	64	64						
53			66	67	67	67	67	68	68						
54				70	70	70	70	71	71	72					
55				72	72	73	73	74	74	74					
56				75	76	77	77	77	78	78	80				
57					79	80	81	81	82	83	83				
58					83	84	84	85	85	86	87				
59						87	88	89	89	90	90	90			
60						91	92	92	93	94	95	96			
61							95	96	97	99	100	103	106		
62							100	101	102	103	104	107	111	116	
63							105	106	107	108	110	113	118	123	127
64								109	111	113	115	117	121	126	130
65								114	117	118	120	122	127	131	134
66									119	122	125	128	132	136	139
67									124	128	130	134	136	139	142
68										134	134	137	141	143	147
69										137	139	143	146	149	152
70										143	144	145	148	151	155
71										148	150	151	152	154	159
72											153	155	156	158	163
73											157	160	162	164	167
74											160	164	168	170	171

Prepared by Bird T. Baldwin, Ph.D., and Thomas D. Wood, M.D.

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[a] These tables were constructed from measurements made on a group of presumably healthy children, most of whom are native-born. They show the *average* weight for height and age and sex. *Individual* children of the same age and height *normally* show wide variation in weight due principally to the width and depth of the skeletal framework. Body width and depth are as important as height in determining body weight. This fact should be kept in mind in interpreting the *significance* of deviation from average weight for height. Weight for height alone is not a dependable index of nutritional status. (Reprinted by permission of The American Public Health Association.)

Table 1 (*Continued*). Weight-Height-Age Table for Girls[a]

Height Inches	5 Yr.	6 Yr.	7 Yr.	8 Yr.	9 Yr.	10 Yr.	11 Yr.	12 Yr.	13 Yr.	14 Yr.	15 Yr.	16 Yr.	17 Yr.	18 Yr.
38	33	33												
39	34	34												
40	36	36	36											
41	37	37	37											
42	39	39	39											
43	41	41	41	41										
44	42	42	42	42										
45	45	45	45	45	45									
46	47	47	47	48	48									
47	49	50	50	50	50	50								
48		52	52	52	52	53	53							
49		54	54	55	55	56	56							
50		56	56	57	58	59	61	62						
51			59	60	61	61	63	65						
52			63	64	64	64	65	67						
53			66	67	67	68	68	69	71					
54				69	70	70	71	71	73					
55				72	74	74	74	75	77	78				
56					76	78	78	79	81	83				
57					80	82	82	82	84	88	92			
58						84	86	86	88	93	96	101		
59						87	90	90	92	96	100	103	104	
60						91	95	95	97	101	105	108	109	111
61							99	100	101	105	108	112	113	116
62							104	105	106	109	113	115	117	118
63								110	110	112	116	117	119	120
64								114	115	117	119	120	122	123
65								118	120	121	122	123	125	126
66									124	124	125	128	129	130
67									128	130	131	133	133	135
68									131	133	135	136	138	138
69										135	137	138	140	142
70										136	138	140	142	144
71										138	140	142	144	145

Prepared by Bird T. Baldwin, Ph.D., and Thomas D. Wood, M.D.

[a] When taking measurements, remove the child's outdoor clothing, shoes, and coat. Take heights with a square, consisting of two flat pieces of wood joined at right angles (a chalk box will serve). Place the child in a good erect position, with heels and shoulders against the wall or a wide board, upon which has been marked or pasted an accurate measure. Age is taken to the nearest birthday.

purposes the most important maturation is of the neuromuscular system. In the neonate motor coördination is minimal, but changes are continuous and rapid during the early months and slower during the early years of life. A variety of behavior forms are dependent upon the maturation of nerve and muscle before they can occur at all, although the perfection of them in conformance with usual requirements results from learning and practice. As G. G. Thompson (*6*) makes the distinction, "Maturation emphasizes the influence of variables that are internal to the organism, while learning is more concerned with environmental conditions external to the organism."

The half dozen behavior areas discussed in the following sections are important both as indicators of developmental progress and in showing the adequacy of basic learning of adjustive behavior. While each of these depends upon a normal maturation of the neuromusculature involved they also require certain learned ways of utilizing the behavior if it is to be acceptable to parents who reflect the norms of our culture at large. Adjustment to external demands must start early. Elimination control, walking, talking, eating methods, manipulation, and fine motor skills all must be learned within requirements of the society. Thus even in basic motor maturation the child must learn to adjust even as he must in the emotional, social, or personality areas.

Manipulation. This is defined as that behavior in which activity is limited largely to local movements in contrast to widespread activity as in walking or running. Arm and hand activity is the major aspect of manipulation in man. The sequence of development of coördination in this area has been intensively studied by Halverson. At birth there is a grasp reflex (*30*) sufficiently strong that the average infant can support 85 percent of his body weight. After 24 weeks or so there is a precipitous decline in the strength of the reflex and later grasping or prehension apparently depends upon new maturation. The nonreflex grasping was studied from analysis of motion picture records of infants attempting to pick up an object of suitable size such as a block. Halverson (*30*) analyzed ten stages from reaching with no contact at 16 weeks to a superior grasp with thumb and forefinger opposition at 52 weeks. The increasing precision of thumb and forefinger opposition has been described by Gesell and Halverson (*24*). In general the changes are from very limited control of fine muscle movements required for finger action, through more accurate reaching and hand contact with the object, to accurate contact and finger control.

Reaching movements at 12 weeks were largely from the shoulder, with the elbow being much less useful but still more so than fingers, wrist, or trunk movements. Finger movements increase steadily, while use of the wrist hardly appears until 20 weeks and then increases rapidly. The movement of the trunk in reaching is minor until 24 weeks but then increases. By 48 weeks all these parts are equally used.

This very brief summary illustrates the order of appearance or perfecting of activity which in its native form requires precise use of fine muscle movements integrated with movements of larger muscles to perform an act. In general the trends in motor development are from mass action to specific movement, from large to small muscles, from head to foot, i.e., cephalocaudal, and from parts nearest the torso to the extremities of the arms and legs.

Locomotion. The development of the important behavior involved in locomotion illustrates the same sort of trends. Shirley (*62*) has shown that the sequence of the major steps is very uniform in the following order: passive postural control, active postural control, active efforts toward locomotion, creeping and walking with support, walking alone. Again there is the sequence from gross body movements to more specific acts and the movement in the head to foot direction. The age at which these various stages appear is affected to some extent by the weight of the child and by the amount of specific training given. In her group of 22 children the following median ages for three steps in the sequence were found:

Sitting momentarily	25 weeks
Standing with support	42 weeks
Standing alone	62 weeks
Walking alone	64 weeks

Gesell's normative placement for certain locomotor acts are (*23*):

Sitting momentarily alone	8 months
Crawling by any method	9 months
Standing alone	15 months
Walking alone	15 months

Norms such as these represent a mid-point about which individual children may vary by weeks and still be considered as meeting normal developmental standards. Superior development was found by Terman (*66*) among his gifted children who walked at a median age of 13 months. In contrast Mead (*52*) reports a median age of walking at 22 months for boys and 21 months for girls among institutional mental defectives.

The motor development involved in manipulation and locomotion takes place in infancy but it is basic to all the motor skills learned at later ages. Running, climbing, riding tricycles and bicycles, ball playing, skipping, rope jumping, and a host of other activities characterize the active waking life of preschool and older children. In older childhood and adolescence the skills involved in using tools, in formal games such as baseball, tennis, or golf, in dancing, or swimming all are learned modifications of the basic motor skills. Gutteridge's (*28*) studies of a large group of children two to seven years old illustrate the ages at which motor play activities are common. Half of the three-year-olds were climbing or trying to; with practice skills increased and by six years over 90 percent were proficient. Jumping was well developed at three years in less than half of the children but in all by six years. Practically all four-year-olds were tricycle riders, and three-quarters of five-year-olds could throw a ball well.

Limited as it is, this review of a very small part of the extensive literature on motor skill development suggests that this sort of activity is useful in evaluating an individual child's development. Dennis (*18*, *20*) from studies of a pair of fraternal twins whose free movement in infancy was restricted concludes that the common motor responses of the first year of life will appear without encouragement or reward. At the early ages maturational factors are of most importance. At later ages and for the more complex skills there must be practice and learning. Therefore with a child whose behavior does not show motor skills to be expected at his age the possibilities of disturbance of biological maturation must be investigated.

Sleep. The preceding two sections have discussed the motor activity maturation of children. But the infant is not always active—in fact sleeping and eating seem to be the characteristic behavior of early infancy. Growth and maturation go on during sleep, which is at no age a period of complete passivity. Even for the neonate, when sleep may total 20 hours a day, investigators, notably Irwin (*38*) and Wagner (*73*), have shown that mobility is characteristic. Sleep affords at all ages a period for physiological recuperation from fatigue. As the infant grows older the increasing stimulation from its surroundings competes with the biological need for rest. Thus the child must learn to go to sleep, and to sleep in some measure in relation to the time patterns of its culture. The failure to learn modification of sleeping behavior often means problem behavior which is considered in Chapter 9.

With increasing age the amount of sleep decreases. Thompson (*69*) reports that the average daily hours of sleep of a group of children from four months to 24 months of age decreased from 19.8 hours at the earliest age to 17.1 hours at 12 months and to 15.6 hours at 24 months. These are somewhat greater times than have been reported by other investigators, selected ones of which are shown in Table 2. These average hours of sleep are in fair agreement among these investigators and with other studies not included here. The pediatric norms for sleep as given for example by Bakwin and Bakwin (*10*) are in conformance with observation. These authors list 22 hours for the newborn, decreasing to 16 hours for the one-year-old; 13–14 hours the second year; 12–13 hours for two to five; and between ages six and 13 years the sleeping hours decrease from 11 to nine.

TABLE 2. Observed Hours of Sleep of Children at Different Ages

	Observations: Average Hours and Minutes			
Age (years)	Terman and Hocking (*67*)	Fleming (*22*)	Chant and Blatz (*16*)	Faegre and Anderson (*3*)
0–1		15:05		14:45
1–2		13:20	13:42	13:14
2–3		12:49	12:45	12:43
3–4		12:30	12:52	12:07
4–5		12:00	12:07	11:43
5–6		11:21	11:30	11:18
6–7	11:14		11:16	11:04
7–8	10:41		11:03	10:58
8–9	10:42		10:35	
9–10	10:13		10:44	
10–11	9:58		10:32	

Feeding. While the human infant is dependent upon others to provide its food it is equipped with a sucking reflex that enables it to nurse, in fact the infant responds to tactile stimulation of the face region with a series of complex movements serving to orient it to a proper nursing position. During the small proportion of time that the young infant is awake feeding is its major activity. Gesell and Ilg (*25*) show the relations of these two activities very clearly in charts of time devoted to each in which most waking periods are short and completely occupied with nursing during the first few weeks of life. Flexibility in feeding

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times, that is allowing the baby to nurse on a self-demand schedule results in more feeding periods in the early weeks but by ten weeks or so these are reduced to a fairly regular five-period schedule as shown by Simsarian and McLendon (*63*, *64*) and by Gesell and Ilg (*25*).

The reflex sucking movements of the infant are adapted to liquid foods from breast or bottle. With maturation, mouth movements change and by the third or fourth month biting movements begin to appear. By seven to nine months these movements have become stronger and it is around this time that weaning from nursing and the introduction of solid foods occur. Anderson (7) reports that two-thirds of American children are weaned by seven months of age and over 90 percent by ten months. In other cultures the general practice, and in our own the occasional child, is allowed to nurse much later than this, even to two or more years of age.

The maturation of teeth is an important aspect of the change of eating methods from sucking to chewing. The usual times of tooth eruption are:

2 lower central incisors	6–9 months
4 upper incisors	8–12 months
2 lower lateral incisors and four anterior molars	12–15 months
4 canines	18–24 months
4 posterior molars	24–30 months

The changes of eating behavior during the first year are largely related to maturation with some learning. Further changes, such as kinds of food eaten, spoon and fork manipulation, table habits, food dislikes, and so on, are matters of learning and do not concern us here.

Elimination. Food is the raw material which supplies the substances converted by the body's chemistry into tissue of all sorts, the secretion of glands, and the waste end products of metabolism. Waste products must be gotten rid of, which is done primarily by the elimination of urine, and to some extent by perspiration, and in fecal matter. A portion of the food eaten is not digested and moves as a semisolid to the rectum from which it is expelled in defecation. These elimination processes of micturition, or urination, and defecation are in the infant reflexly controlled. Increasing pressure in the bladder and on the anal canal stimulate relaxation of the sphincter muscles leading to voiding.

Social demands require that the child learn voluntary control of the sphincters so that voiding takes place at an acceptable time and place. As the Bakwins (*10*) point out, this learning involves a conditioning process in which the tactile and visual stimulation of a toilet place is substituted for the direct stimulation of the sphincter and with increasing maturity an acceptance of responsibility on the part of the child for seeking help if necessary in carrying out elimination behavior.

Bowel control is commonly established by 12 to 15 months of age if advantage is taken of determining the usual time of evacuation and introducing the child to a toilet seat at such times. Regularity comes with maturation and should be used as the basis of training. For children who do not establish regularity training may be delayed. However, unless there is some abnormal condition bowel control should be established by two years of age.

Bladder control requires maturation for successful learning. While training may be started as early as a month or two of age very little is gained. McGraw (*50*) reports a study in which bladder training of one twin boy was started at about 50 days. While during the period to about 600 days there were successful voidings there was little evidence of learning. After 600 days the curve of success increased sharply and by 700 days successes were close to 100 percent. No training was started with the other twin until 700 days and his performance was almost immediately as good as that of the twin with the longer training. While there were wide individual variations among children, the twins started later were soon as successful as their partners. Evidence such as this indicates that training started at 10 months or later takes advantage of maturation and is more effective than trying to train earlier.

ABILITIES

In the preceding section it is pointed out that physical maturation is basically biologically determined, but that experience and learning are important in perfecting and increasing motor skills. The development of mental abilities also depends upon the combined influences of biological maturation and environmental learning. While mental ability is commonly considered as synonymous with intelligence, for the purposes of the present discussion its connotation will be extended to include aptitude and achievement as well. Put another way our interest here is in the problems of behavior related to the acquiring of knowledge, information, thinking methods, and the like that constitute so much of the cognitive learning necessary to meet many of the demands of our society.

Intelligence. Definitions of intelligence have been legion during the past fifty years. They have varied from emphasis on a biological characteristic determined by heredity to the ambiguous "that which intelligence tests measure." Rather than thinking of intelligence as an entity possessed in varying degrees by different individuals it is better to conceive of it as a theoretical construct, as proposed by Thompson (*6*), used by psychologists in explaining certain kinds of behavior. As such a construct intelligence is inferred and measured by indirect operations, and it has descriptive and predictive properties. In general but concrete terms Goddard (*26*) has defined intelligence as "the degree of availability of ones' experience for the solution of immediate problems and the anticipation of future ones." This statement includes the significant aspects of learning and problem solving whether these are indicated by response to the simple task of copying a circle by the three-year-old, by repeating six digits in reverse order by the adult, or by developing the polio vaccine or formulating the concept of spin of nuclear particles by the professional specialist.

Studies of intelligence—its growth, its relations to physical and social variables, the differences between individuals, and so on—have usually used the indirect measures of carefully standardized instruments known as intelligence tests. Such tools are described in greater detail in the next chapter. In this place we are concerned only with the changes measured by such tests during the growing period of childhood. The median performance on any intelligence test of large random samples of children will show a steady improvement in score with increasing chronological age. This is true whether the test is devised to give an M.A. score, or a point score in terms of correct answers, errors, or time. Such increase of performance with age may be related to physical maturation and growth or to the increase in experience resulting from having lived longer. As a matter of fact both of these areas of influence are important. Hundreds of studies have investigated the correlations between intelligence test performance and a host of physical, physiological, social, and educational variables. The details of the results are too extensive to discuss in this chapter but are reviewed by Jones (*44*) to whose article the interested reader is referred.

The influences which determine the level of performance on intelligence tests may be briefly summarized thus. The efficiency of the biological organism determined by hereditary factors, but also influenced by congenital and postbirth pathology, sets a limit to the possibilities of learning from experience. Within such limits learning will take place to the extent that the milieu of the child affords experience. The responses to tests, which are taken as a measure of intelligence, are learned, so that the performance is a resultant of the child's biological adequacy for learning and his opportunities to learn. A further complication is added to the opportunities for learning by emotional and interpersonal aspects of the child's life which may facilitate or inhibit learning even though his environmental opportunities are objectively rich. Suggestive evidence of the significance of these factors is found in the conditions related to mental deficiency as discussed in Chapter 4, and on the other hand the superiority in physical and social characteristics found in gifted children discussed in Chapter 7.

TABLE 3. Age Increases in Point Scores on the Arthur Performance Scale

Age	Points
6.5	7.70
7.5	15.14
8.5	21.86
9.5	27.91
10.5	32.63
11.5	36.27
12.5	39.07
13.5	41.39
14.5	43.54
15.5	45.31

In the more detailed discussion of intelligence tests and their scores in the next chapter it will be pointed out that measures of intelligence are not absolute values but indications of a given child's position in relation to the performance of other children of his age. In general the median performance of groups of children of different ages improves regularly with increasing age. Depending upon the nature of the tasks in the test and scoring method devised their improvement may be equal for each year or there may be a regular decrease with increasing age. Data from the Arthur Performance Scale (8) shown in Table 3 illustrates that each succeeding age from 6.5 to 15.5 has a higher point score although the number of points difference for each year decreases in a regular fashion. This course of growth is typical of most intelligence tests—the deceleration in early years is small although usually present, beginning in the preadolescent years the deceleration increases. Growth is slow in early adolescence and reaches a maximum at from 18 to 20 years.

The course of average growth in intelligence parallels that for physical maturation and reaches its maximum at a similar age. Individuals may deviate from this average by exhibiting a faster or slower rate or by irregularities of a temporary or permanent sort depending upon physical and environmental circumstances. Such deviations, when great enough to place the child significantly far from the median, define several of the types of exceptional children to be discussed in later chapters.

Aptitudes. Intelligence as discussed in the preceding section is a general ability which by many psychologists is considered to be the functioning together of a number of special abilities. For example Thurstone (*72*) summarized his studies over many years on the factor analysis of intelligence test performance by identifying a series of components which are mutually exclusive in varying degrees. His eight factors are (*1*) verbal comprehension, (*2*) word fluency, (*3*) numerical, (*4*) spatial (ability to analyze objects in space), (*5*) memory, (*6*) induction (discovering principles or rules), (*7*) deduction (applying a principle or rule), and (*8*) flexibility and speed of closure (size up a problem quickly and facility in moving from a less promising to a more promising problem solution). Such factors in general intelligence introduce the concept of special aptitudes or abilities.

Special talent in art and music has long been considered by laymen a trait quite distinct from intelligence and having its origins in inheritance or a "God-given gift." However, such talents are a kind of behavior and psychologists have been interested in analyzing their nature as they would any other behavior. It was soon evident that artistic and musical abilities were only two of a larger number of special aptitudes that could be found in the behavior of individuals in varying degrees. Among these such aptitudes as mechanical, motor, clerical, social, and various professional (science, engineering, medicine, or teaching), as well as in art and music have been described and special instruments devised to measure them.

Special abilities or aptitudes are best conceptualized in the same way we dealt with intelligence, that is as theoretical constructs inferred and measured by indirect operations. As Remmers and Gage (*58*) say, "Special abilities are present traits that determine the individual's maximum performance of a relatively specific kind of task under the best possible conditions of motivation." The traits involved are in part biologically determined, e.g., pitch discrimination in musical ability, or motor coördination in athletics. In perhaps larger measure they are learned from informal experiences in the family and other social groups, or from the formal training of schools. Frequently behavior at preschool ages will give evidence of special abilities even as it shows evidence of general ability level. However, practice, encouragement, and learning are necessary if the special ability is to show development whether it be mathematical, musical, verbal, social, or what not.

Achievement. In both the areas of motor skill and cognitive knowledge what a child can do at a given time is his achievement. Commonly this term is used in connection with learning of school subjects, but there is no reason why its definition should not be extended. In this broader sense measures of achievement at successive ages indicate the child's behavioral development. Both intelligence or general ability, and special abilities are measured by measuring achievement. The difference between intelligence, aptitude, and achievement tests is really one of emphasis. If we are interested primarily in what the child can do we speak of achievement and recognize that his performance is the result of biological maturation and experience. At the same time such measures give a basis for prediction of future performance, and when so used they are serving as measures of general or special abilities. In any case learning is an important factor in achievement and this process deserves at least brief attention.

Learning. The whole of child development is intimately related to learning. It has been referred to in connection with physical development, intelligence, and aptitudes and will recur again in the discussion of social and emotional growth. The process of learning has been the subject of a great deal of experimentation and theoretical formulation as is evident by such reviews as those by Hilgard (*35*) and Thorpe and Schmuller (*71*). For present purposes learning may be defined as that process which results in behavior modifications as a result of practice in responding to stimuli, where the behavior involves maturation and some degree of reinforcement of rewarded acts. In infancy to a large degree and in later childhood to a lesser degree biological maturation and learning are so intertwined that behavior modification involves both processes; before adequate neuromuscular maturation has been reached practice will not result in changed behavior, after it has occurred denial of practice will limit the appearance of specific acts, but when opportunity to practice is available, perfection of the act comes quickly.

Munn (*54*) in an extensive review of studies of learning in children devotes attention to four types of learning. (1) Conditioning, which may be described as the substitution of an originally ineffective stimulus for an effective one in determining a specific response. Examples are salivation on hearing a sound instead of taste stimulation of the tongue, a foot withdrawal from touch stimulation of the chest in place of a painful shock to the foot. (2) Sensorimotor skill learning relating to walking, grasping, reaching in the infant, and to game playing or tool using, or writing in the older child or adult. (3) Memorization, which involves the learning of symbolic, usually verbal, material and is basic to a considerable proportion of information acquiring and school learning. (4) Problem solving, which may involve trial-and-error approach to tasks in varying degrees and extends to the fairly sudden seeing of relations basic to a solution which is called insight.

In the behavior events which make up the daily on-going activity of every child or adult one or more of these types of learning is involved. Some acts have been repeated so frequently they have become habits, while others require the use of knowledge previously acquired before they can be completed. For the adult tying a shoelace is done automatically, while the young child just learning this skill must recall movements of previous attempts and make several trials before he succeeds. The conditions of learning, the most effective methods, the influence of maturation, the speed of acquisition, the course of forgetting, the influence of age and ability, and a host of other factors have been studied in children, adults, and animals. In all the learning process appears to be the same. As Munn (*54*) says, "Differences may be attributed to variations in neuromuscular maturation, in motivation, and in previous experience but not, apparently, to a different kind of learning process in each."

EMOTIONAL DEVELOPMENT

The third aspect of behavior development to be described is that complex of physiological changes, overt behavior, and conscious awareness called emotion. Many psychologists have proposed definitions of emotion which vary so greatly in the aspects emphasized that it is hard to believe the writers are dealing with the same phenomenon. Jersild (*40*), without attempting a formal definition, refers to five factors which appear to be involved in emotional behavior. Subjectively emotion involves *feelings*, both along a scale of pleasantness and unpleasantness and a variety of other qualities, and a *perception* or awareness of a stimulus situation about which the individual has feelings. Emotion also is marked by an *impulse* or disposition to action. Finally, emotional behavior is accompanied by *physiological changes* especially in the viscera, and usually by *overt responses* of striped musculature which are evident to an observer. Our interest is to examine this complex of behavior in the period of childhood development.

Emotional behavior of infancy. It is evident to casual observation that young infants do not exhibit behavior that can be fitted into the fairly specific patterns which are called anger, fear, joy, and so on in the older child or adult. In 1919 Watson (*74*) concluded from his experiments with new-born children that only three patterns of emotional behavior can be distinguished: fear in response to loud noise and loss of support, anger in response to physical restraint, and love in response to stroking. From these three basic and native responses all subsequent emotional behavior is developed through learning. This now classical formulation was soon questioned by other experimenters stimulated by Watson's work. Sherman (*61*) in a series of papers reported failure to distinguish Watson's three primitive emotions, or for that matter any other consistent behavior patterns, when moving pictures of new-born infant behavior were judged by a variety of observers. In his final paper of the series a genetic theory was proposed which differentiated only between positive-approach responses to "pleasant" stimulation and negative-withdrawal responses to "unpleasant" stimulation. Again the development of differentiated, complex emotional behavior was the result of learning.

Bridges (*13*), from studies of infants in a hospital and of nursery school children, formulated a more extensive developmental theory which, while it is somewhat speculative, indicates the differentiation of patterns at various ages under two years. Initially the emotional behavior of the neonate is a generalized excitement shown by uncoördinated overt and visceral reactions to intense stimulation of any sort. Shortly differentiation begins with distress at about one month and delight at around two months. The first is evidenced by muscular tension, crying, and checked breathing. Delight is indicated by relaxation, fleeting smiles when being nursed or petted, and cooing. These patterns become more vigorous and clear-cut within a month or two. Each of these two patterns is the basis for further differentiation at later ages.

Between three and six months distress gives rise to reactions which are distinguishable and can be called anger, disgust, and fear. Between 10 and 12 months delight gives rise to elation and affection, the latter first for adults and by about 13 months for children also. Before two years of age there are two additional differentiations: jealousy from distress around 17 or 18 months, and joy from delight around 20 months. In preschool children further differentiation takes place and by five years Bridges speculates that shame, anxiety, disappointment, and envy arise from distress, and hope and affection for parents from delight. In this proposal the differentiations are partly due to maturation, but in perhaps larger measure to learning and the results of experience.

The part played by maturation at early ages is suggested by Jones's (*43*) finding that more intense stimuli were required to evoke the galvanic skin response in infants than in adults. This response of electrical resistance of the skin is an involuntary one involving the autonomic nervous system, as do responses of the viscera. In general, however, the overt behavior and its changes are more significant in infant emotional behavior than visceral responses, which according to Bridges (*13*), show individual variations and vary in different instances of the "same" emotion determined by overt behavior.

The nature of emotional behavior change described by both Sherman and Bridges has been confirmed in essence by many investigations. In brief summary the course of development starts from an undifferentiated generalized activity in the new-born. Within months there are recognizable differences in the overt behavior and these are related to different stimulating situations. The behavior changes are most immediately evident in overt activity with visceral responses having less differentiation even in the emotional behavior of adults. While neuromuscular maturation is involved in the details of the motor activity, the differentiation of behavior patterns results from learning.

Emotional development in older children. The differentiation of emotional behavior patterns in infancy described in the preceding section were given names which would be used for similar types of behavior exhibited by older children or adults. At older ages the differentiated patterns are of greater psychological importance than the common elements, for example in visceral components, in impulsive character, or in avoidance-approach aspects that several or all of them may have. Thus we are usually more interested in fear, anger, love, joy, jealousy, and so on than in a generalized concept of emotion. It is in connection with such specialized aspects of emotion that most research has been done and a brief review of the development of emotional behavior can best be considered under several headings.

Fear. While loud sounds and loss of support are stimuli for fear responses in early infancy, as claimed by Watson, these are not the only effective stimuli. Sudden visual or touch stimulation, unfamiliar persons, objects, and situations, painful stimuli, and in some measure, animals and the dark have all been reported as fear provokers in children under two. Of course by this age the child's experiences may have given abundant opportunity for learning to take place. Yet at the earliest ages, say the first six months or so, there are sufficient reports of fear-type reactions to a variety of stimuli, that limiting the primary stimuli to noise and loss of support cannot be justified. While there is little specific evidence it appears reasonable that any sudden (or strange) stimulus may be fear-producing at these ages.

As children grow older fear behavior involves essentially the same kinds of visceral responses and the overt behavior is still characteristically avoiding in pattern. However, the stimulating conditions do change. In an extensive study by Jersild and Holmes (*41*) mothers and teachers coöperated by keeping a record of fear behavior of their children over a 21-day period. Noise and strange stimuli were the most frequent fear arousers in the under-two-year group, accounting for about 25 percent; these decreased to 10 percent in the oldest of the three age groups, four to six years. Falling, loss of support, and pain also decrease, but the latter was higher in the oldest group than in the two- to four-year-olds. Sudden stimulation increased in the middle group but was about the same in the two extreme groups. In contrast to these decreases the following stimuli definitely increased over the age period: imaginary creatures, the dark, these two in combination, animals (a slight decrease between second and third groups), threat or danger of bodily harm, and in lesser measure dreams and signs of fear in others. Also in preschool children Hagman (*29*) reported the most common fears to be of dogs, doctors, storms, and darkness. Finally Jersild, Markey, and Jersild (*42*) and Pratt (*57*), studying older urban and rural children, respectively, agree in reporting that cultural stereotypes are commonly given as the things the children were afraid of:

Jersild's six- to twelve-year-olds were afraid of mysterious and supernatural things, and of animals which often they had never seen. These stimuli were commonly reported by Pratt's rural four- to fourteen-year-olds.

It is very evident that with increasing age there is a decrease in the effectiveness of the early primitive stimuli to fear and the appearance of a wide variety of other stimuli to take their place. Both can be best accounted for by learning. Loud noises do not harm and their effectiveness dies out, but one experience with an apparently unfriendly and dangerous dog introduces a new stimulus. The actual experience with a harm-producing stimulus may frequently mean fear with the subsequent appearance of a similar stimulus. But actual experience is not the only source of learning. The tales of companions, the threats of parents, the fear behavior of close adults as models all provide for learning fear from vicarious stimulation. Further, as the child's world becomes psychologically larger, as new objects and events acquire meaning, there is the possibility of greater awareness of real or fancied danger. Finally, there is with increasing age the fear or worry of anticipated dangers as cognition expands to include the future as a more meaningful aspect of the life space.

We cannot hope, nor should we desire, to eliminate fear as a form of behavior. The avoidance response which is the overt characteristic behavior of fear has a very real value in adequate reactions to real dangers. But, the most wholesome behavior development will keep the fear-provoking stimuli within these bounds.

Anger. Perhaps the most common emotional behavior in infancy—and in later childhood as well—is anger. The stimulus of physical restraint which Watson associated with anger can be readily generalized to restraint or thwarting of all kinds of behavior and desires. While physiological changes occurring in anger cannot be clearly differentiated from those of fear the overt behavior is quite the opposite. In general, fear behavior is avoiding or escaping, while anger is characterized by the approach-attack behavior of motor or verbal aggression. Development patterns of anger involve changing stimuli and changing reactions.

The infant's own incomplete maturation as well as restraints of the environment may occasion anger. Poor motor coördination, limiting the possibilities of reaching, specific movement, or strength-skill requiring acts produce resistant anger behavior. As the infant grows during his first two or three years his world gets larger, his response possibilities to richer perceptions improve, but often the former do not permit desired reactions to the latter. And, perhaps even worse, the physical world and the demands of parents and others interfere with what he would like to do. The behavior results are anger or temper outbursts, rage, aggressive attack—none of which usually solves the problem except by chance. The one exception to this statement is the possibility of such behavior gaining a reward of some sort, either the desired food or an attention-satisfying substitute, from the response of a parent or other adult.

Goodenough (*27*) in a classic study of anger in preschool children found that under one year about half of all outbursts occurred in connection with dressing, bathing, and such routine care, or were associated with minor physical discomfort. With two-year-olds routine care still was a frequent source of anger, but conflict with authority and social problems achieved a prominence. These last two maintained the primary position as stimulating situations for three- to six-year-olds. Social conflicts are prominent among anger-provoking stimuli throughout childhood. Ricketts (*59*) found crying, usually part of an anger response, resulting from conflict over playthings in nursery school in 64 percent of all outbursts. At home the same children responded to the extent of one-third to conflict in dressing and toilet routines, but even here the parent was part of the total situation. Landreth (*46*) reports similar proportions—at home 38 percent of outbursts were conflicts with persons, and 39 percent of outbursts were related to personal care routines, while in nursery school three-quarters of all outbursts involved social conflicts with other children or adults. In a much older age group Hicks and Hayes (*34*) found that young adolescents 11 to 16 years of age reported social situations provoking anger as being teased, unfairness of others, sibling impositions, being lied to, others being bossy or sarcastic.

The behavior overtly expressing anger also changes with age. In infancy crying, diffuse uncoördinated movement, even head banging and breath holding occur. Crying decreases with age, and the diffuse undirected activity becomes more coördinated and directed at the frustrating stimulus. In fact Goodenough (*27*) found that anger outbursts reached a maximum frequency of about 0.13 per hour at about 1.5 years and then decreased fairly rapidly to 0.06 per hour at five years, with a slight rise during the following two years. With the achievement of speech verbal behavior becomes important as an element of anger with threats, invective, accusation, teasing, name calling, and swearing all playing a significant role. In normal development the infantile outbursts are reduced or eliminated, and more socially acceptable behavior responses substituted. Also the child learns to accept the necessity of certain restraint to action or desire, thus reducing the occasions for anger responses.

Pleasant emotions. It will be recalled that in Bridges' (*13*) genetic theory of emotions the primitive excitement gave rise within the first couple of months to distress and delight behavior. Development from the former included fear and anger about which there has been considerable research. From the delight stem arise what are here called "pleasant" emotions including affection, elation, and joy. Unfortunately these aspects of emotional behavior have not been studied from the point of view of behavior changes with growth.

In contrast to fear, anger, or other distress emotions, the "pleasant" emotions are not marked by extreme behavior signs. While there are probably physiological changes similar in kind to the other group they must certainly differ in degree. The lack of research interest may be due to the mild and nonspectacular behavior in the "pleasant" emotions. Smiling may be thought of as an external behavior expression of "pleasant" emotions, and this pattern according to studies of Leuba (*47*) and Dennis (*19*) appears to be a result of maturation, with the particular stimuli being learned even during the first year of life.

As children grow older and their experiences increase there are casually observed evidences of affectionate behavior toward parents, siblings, and others. The form such behavior takes mirrors the nature of affectionate behavior shown to the child by parents. Happiness, joyfulness, contentment, pride, pleasantness are only some of the terms which are applied to behavior and self-awareness that characterize "pleasant" emotions. In all these the effective stimuli and the patterns of response result from learning through experience.

The brief reviews of research on the development of fear, anger, and affection are illustrative of findings from studies of all types of emotional behavior. There is a common sequence in the development which may be summarized as follows. In the very young infant there is a relatively undifferentiated, uncoördinated overt behavior which is reasonably called emotional. The detailed acts in such behavior are limited by the stage of neuromuscular maturation—crying occurs as the sound production mechanism is matured, but striking or kicking are impossible because the nerves and muscles necessary for such acts are not matured.

From this matrix specialization arises in two directions—stimulation and response pattern. Before considering these two directions of specialization it can be pointed out that the physiological changes which are part of the total emotional response are essentially similar in all named emotions, although there may be differences in degree, and there are certainly changes in infants resulting from physiological maturation.

The first specialization in the total behavior events we call emotion is in the stimulus situations giving rise to them. Basically noxious or danger-threatening situations are fear-provoking; interference with desired on-going behavior, thwarting circumstances, or restraint produce anger; acceptance, security, or pleasant stimulation fosters affection and joyous behavior. What the detailed stimuli will be at a given age or in a given child which serve to arouse emotional response must be learned. A rag doll is a joy-producing stimulus to the little girl whose toy possessions are nil, while an expensive mechanical vehicle may arouse little response in the toy-wealthy child. Snakes, lightning, darkness, ghosts, and a host of other objects or conditions are not inherently fearful—they acquired such stimulus values through direct or imitative experience. It is expected in emotional development of normal children that experience will separate stimulating situations into those from which emotional reactions are to be expected, even desired, and into the multitude of situations where emotional reactions are unwarranted and even are undesirably unadjustive.

While increasing age and experience brings about selective changes in the situations arousing emotion, the pattern of the overt behavior itself may be expected to change. Anger expressed in a temper tantrum with screaming, kicking, biting, and all the rest may possibly be condoned in the two-year-old but in the older child other kinds of behavior are required if anger is to be socially acceptable. So with the overt expression of fear, jealousy, affection, or other emotions there is a limited range of behavior acts which in our culture are considered acceptable. In normal development the child learns these limits to behavior—if he does not the question of the adequacy of personal-social adjustment arises. Behavior deviations of this sort are considered at length in Chapters 8 and 9.

SOCIAL DEVELOPMENT

In the preceding sections there have been frequent references to the significance of social demands, social influences, and social experiences in the course of child development. Why humans live in social groups is a question which cannot be gone into here, but that they do is a factor of basic importance in considering normal child development. The helplessness of the human infant ensures the ministrations of other humans, usually parents, if development is to take place at all. Thus the infant from the day of birth develops only in an environmental situation which includes other persons to whom, and with whom, he learns to react. While experiments like those of Dennis (*20*) indicate that, given the necessary physical care, infants will develop with a minimum of social stimulation this is an unusual situation. For usual growing up the child has experiences of social stimulation expanding from immediate family members to friends and relatives, school mates, and finally to the complexities of the social relations of the adult. While the details differ the process of social influences are in essence the same for children in America, Germany, Bali, Truk, or the Arctic.

Age changes in social behavior. At birth and for a month or so thereafter the infant is nonsocial. At least, his physical needs being taken care of, he gives no indication of specialized reaction to the care-taker. Buhler (*15*) says there is response to the human voice as such at about two months. From this age on there is increasing evidence of reaction to other persons, usually adults, by smiling, anticipatory activity to being picked up, fretting when left alone, differential reactions to friendly and unfriendly voices and to familiar and strange persons. In the last few months of the first year there is imitation of simple actions and speech of others. Reaction to other babies appears after social reaction to adults. Maudry and Nekula (*51*) report smiling at, and response to the crying of, other babies around seven or eight months, although some indication of responding to other infants may be given a month or so earlier. Thus by the end of the first year the infant has an appreciable repertoire of behavior patterns in response to social stimulations. Such behavior increases in the second year with especially greater interaction with other infants, and greater complexity in speech and other overt behavior in relation to adults and older children.

During the preschool years, from two to five, there is a constantly increasing variety of social behavior patterns. In summarizing the social development of this period Hurlock (*4*) devotes attention to such recognizable patterns as negativism, imitation, rivalry, quarreling, coöperation, ascendant behavior, sympathy, and social approval seeking. This but illustrates the behavior variety but it would unduly extend our discussion to explore each of them. Two of these, negativism and coöperation, warrant brief consideration.

Murphy, Murphy, and Newcomb (*55*) say, "Resistance and negativism may commonly be expected to reach a peak at three years, more or less independent of economic group or geographic location. This probably means merely that in our culture the conflict of the child's readiness to expand with the restrictions imposed by adults is almost universal for this age." Evidence of negativism may be shown by motor and verbal responses with the latter increasing with age as the former declines. At this point it is important to recognize negative resistance behavior as a part of normal social development in the early preschool age; as a form of deviating behavior it is discussed more fully in Chapter 8.

Coöperative behavior, especially with other children and in play situations, shows very evident changes with increasing age. Hattwick and Sanders (*33*) from an analysis of teachers' ratings of 55 nursery school children found the percentage showing some evidence of avoiding play with other children (which may be interpreted as noncoöperation) to decrease from over 80 percent at two years to barely 30 at 4.5. Parten (*56*) with a similar age group found solitary play decreasing more than one-half from two to 4.5 while coöperative play, which was very infrequent among two-year-olds, increased sevenfold in three-year-olds and had a slight further increase in the four-year-olds. Parallel play, that is activity carried on in the presence of, but with no social contact with, other children was more frequent than any other sort in two-year-olds, but decreased with age although its greater relative frequency was maintained.

Both negative and coöperative behavior are signs that as the normal child grows older he is learning to respond to the ever-present social situations. Other observations of Hattwick and Sanders also indicate this. Thus their children increasingly sought attention by calling or showing off, they bossed others oftener, and they looked for praise more frequently as their ages went from two to four years.

The social interacting behavior which is exhibited in the older infant and which develops as the preschool child has greater contacts with neighborhood and nursery school playmates becomes increasingly complex after the child starts to school. Now the social world of contemporaries is enlarged and new learning must take place. The course of social behavior does not follow an easily summarized sequence. Rather the establishment of accepted social skills, the status among peers, the kinds and degrees of social participation, the learning of social attitudes, are some of the facets of the complexity which constitutes social behavior in childhood, adolescence, and adulthood.

Social skills. In any particular culture there are skills required if the individual is to be a normal, useful member of the group. The learning of the desired skills starts in infancy and the preschool years, and continues during childhood and adolescence. The Vineland Social Maturity Scale (*21*) is a device by means of which the degree of achievement of a variety of social behavior patterns can be indicated in relation to norms of children in general. Examples of items from this scale illustrate the kind of behavior that can be expected at several ages. At four years, "goes about neighborhood unattended"; five years, "plays simple table games"; seven years, "participates in preadolescent play"; nine years, "makes minor purchases"; eleven years, "is left to care for self or others"; 15 years, "buys all own clothing." These items alone cannot be taken as criteria for normal behavior because the measure of social maturity depends upon behavior defined by several items in each age level. They do indicate the nature of social tasks evaluated at different age levels. Although, as Bradway (*12*), Louttit and Watson (*48*), and others have shown, intellectual maturity indicated by M.A. is closely related to social maturity in groups of unselected school children it cannot be held that this is the only factor of significance. For example Lurie and co-workers (*49*) believed that among a group of problem children those with low I.Q.'s tended to compensate by the development of higher social competence. Physical limitations, environmental restriction, parental relations, and personality deviation may all be operative as well as intelligence, in affecting the development of social behavior skills.

Peer status. The behavior items of the Vineland Social Maturity Scale reflect the behavior expected by adults in our society. Important as these adult requirements may be for children of school age and for adolescents, the acceptance of behavior by age peers is of equal or greater importance. Bossard (*1*) emphasizes that the child-youth peer relations must be defined both in the negative as nonadult and in the positive as association on equal status terms. Peer groups form as play groups and they range from short-lived informal groupings to cliques, clubs, and similar formal groupings which may retain a core membership and stability over many years. Hurlock (*4*) points out the increasing interest in peer activities and in being accepted by members of the group as characterizing the later years of childhood. She emphasizes the "gang" activities of later childhood as a normal pattern of behavior without the connotations of delinquent behavior which the term has had for many years. From an analysis of the nature and dynamics of peer group relations Bossard (*1*) holds that these are one of the child's major life experiences and that they play a basic part in the formation of adult personality. The groups "play an important role in child development (1) through their emphasis upon the rights of others, (2) as agencies controlling their members, (3) as a security device, (4) as a cultural entity, and (5) as a determinant of personality roles."

Social participation. Both within and without the peer group children make endless adjustments to others. At early ages it is usual to find such contacts marked by conflict and self-interest, but in later childhood normal development is marked by coöperation, social acceptance, and adjustment to members of his age and peer group. The variation in the acceptability status of children in a group is clearly shown by the techniques of sociometry as devised by Moreno (*53*). Children in a group, e.g., a classroom, club, or playground are asked to indicate their first, second, and third choices of companions for a particular activity. By plotting the choices the pattern of relations and the status of each child may be seen. For example, in a group of 14 children in a classroom Jennings (*39*) found at the one extreme one girl and one boy whom no one selected, while at the other was a girl chosen by nine of the group and as first choice by six of them. Between these two extremes were children chosen only once to two children chosen five times. It is evident that the function of the group and its influence on the several children must differ when acceptability to others ranges so widely.

Companions are a normal part of the child's growing up. There may be temporary playmates, specific friendships having some permanence, or a small group of mutual friends commonly called a clique. The change of permanence of friendships with age is shown by Thompson and Horrocks (*68*), who asked over 1800 children to indicate their "best friend" on two occasions two weeks apart. The same person was indicated on both occasions by 50 percent of boys and 40 percent of girls at age eleven, while by 18 years over 70 percent of boys and over 90 percent of girls named the same best friend on the two occasions. This greater stability in friendship with increasing age has been reaffirmed by Horrocks and Bulser (*37*) in a later investigation. In another study Austin and Thompson (*9*) asked over 400 children their reason for choosing friends and for changing them. The most frequent reasons for choosing friends, each with over 10 percent of mentions, were frequent association, similarity of tastes and interests, and cheerfulness. The most frequent reason for change were lack of recent contact and a recent quarrel. Thompson (*6*) in summary says "although children are originally drawn together by physical proximity and similarity of interests and tastes, the prolongation of friendly relations is largely due to the complementary nature of their behavioral dispositions."

Social attitudes. As a final aspect of social behavior a word may be said concerning the development of social attitudes. Not only does the normal child exhibit particular patterns of overt behavior and social interactions with age mates and adults but he is expected to learn and to make part of his total behavior complex those beliefs, values, customs, and attitudes which characterize the culture or subculture of which he is a part. Sherif and Cantril (*60*) briefly define the psychological meaning of attitude as denoting "a functional state of readiness which determines the organism to react in a characteristic way to certain stimuli or stimulus situations." When the stimulus situations are people or groups of people we speak of social attitudes. Racial prejudice, acceptance or rejection of members of minority groups, attitudes toward religious beliefs and practices, moral, economic, or intellectual values held significant, and views on the more desirable types of political or group activity are all examples of phenomena in this category. The very nature of these examples suggests that attitudes must be the product of the individual's experience and that they can find their source only in the cultural climate from which the child can learn.

Racial attitudes toward Negroes is a convenient illustration. Both Criswell (*17*) and Koch (*45*) have reported studies of expressed preferences of children in mixed white and Negro classes. The former, using a sociometric technique, followed the self-preference tendencies through grades from kindergarten to eighth. With increasing age each group tended more to prefer its own members. The white children had higher self-preference scores at all grade levels, while these scores for Negro children were low to the fourth grade. The mutual withdrawal of the two groups was marked in grade five and after because of a sudden change in the scores of the Negro children. Koch, using a paired-comparison technique, sought answers to the question, "Which do you like better?" with pairings between respondents from the four possible color-sex combinations. Her findings show that white children preferred their own race to the extent of over 60 percent even at the second grade, with an increase to 90 percent by the twelfth grade. On the contrary, Negroes expressed essentially similar preference for their own race and for white children until the sixth grade, after which their own race was preferred increasingly to over 90 percent by the twelfth grade. In these studies the reason for their preferences is not clear but Horowitz (*36*) has demonstrated that white children's attitudes are not dependent upon the degree of contact with Negroes. He feels that the children's social attitudes are determined more by the prevailing attitudes of white adults in the culture than by the child's direct experiences. It seems reasonable to extend this conclusion from attitudes toward Negroes to all social attitudes. The basis for the attitudes developed by children is to be found in the attitudes of adults, particularly parents, who provide for him the cultural milieu in which his social learning must take place.

PERSONALITY

A serious criticism can be made of the brief sketches of growth in the physical, ability, emotional, and social domains presented in the foregoing sections. The discussion has not emphasized, in fact it has almost neglected, that behavior growth is a dynamic interaction of many factors, and that the behaving child is responding to more than biological maturation and to immediate external stimulation. His biological nature, his experiences, his successes and failures in adjustment, his frustrations, his beliefs and values, his skills and knowledge, his abilities and aptitudes, form a dynamic complex which constitutes the personality, the self, the ego, or whatever one wants to call the personal characteristics that mark him as an individual.

The nature of personality and its relation to "exceptional" conditions is discussed in many chapters of this book. Here it will suffice to point out that the balances between the child's goals and their attainability by him are the measure of personality adjustment. Thompson (*6*) has succinctly summarized the requirements for normal adjustment in sixteen criteria which may be condensed and paraphrased as a summary statement of what the normal child may be expected to have learned.

1. To select goals for satisfying needs that are within his capabilities of accomplishment.
2. To select goals that are socially acceptable, with the parallel

necessity of discriminating socially acceptable and unacceptable goals.

3. To deny immediate satisfaction of some needs either because of social unacceptability or because of the recognition of greater values of more remote goals.

4. To vary behavior and to accept substitute goals in reasonable relations to the demands and potentialities of the environment.

5. To use a minimum of phantasy response and to satisfy a majority of needs in conformance to the realities of his environment.

6. To tolerate reasonable amounts of frustration in goal strivings, and of anxiety over the appropriateness of behavior.

7. To respond with reasonable consistency in striving for the same goal at different times, but to seek a variety of goals to satisfy his needs.

8. To make decisions on a course of behavior and then to accept the natural and social outcomes thereof.

9. To establish close personal relations with a number of associates and friendly relations with a larger number of persons.

10. To accept consequences of actions without feelings of guilt or failure, to plan future actions in the light of past experience, and to satisfy needs with sufficient frequency to feel satisfactorily happy.

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Chapter

3

Clinical Psychological Testing

PERHAPS the most important tools for identifying and appraising exceptional children are the various testing instruments which have been developed primarily by psychologists. Tests available for the measurement of intelligence, abilities, achievement, skills, personality, aptitudes, and personal and social characteristics number in the thousands, as shown in the encyclopedic volumes by Buros (*20–23*). Not all of these are of immediate value for the study of exceptional children, but the psychologist must be aware of the variety available and must have skills in administering and interpreting a number of individual tests appropriate for clinical appriasal. In this chapter a number of tests are described although no attempt is made to provide an adequate manual of clinical testing.

Individual tests of whatever kind provide some kind of measure of performance and also the opportunity to observe behavior in a standard situation. The performance measure, usually in quantitative or score terms, provides a basis for comparison of the child's performance with that of other children of his age and social status. This possibility of comparison would seem to be a fundamental value in intelligence tests. There are no absolute measures of ability (and there is no good reason to believe there ever will be any). The length of a table is measured in terms of its relation to an arbitrary standard of length—the yard, meter, or other unit. The temperature of a body is determined by its effect on a column of mercury or alcohol which is so arranged that it will expand along a scale of arbitrary units. But a child's ability in an activity cannot be measured in this manner, because no arbitrary standards can be set up that will have the same validity under all conditions. Hence the measurement is made by comparing his performance with that of other children usually of the same age, although other criteria, such as grade, race, sex, size, etc., may be used for the group. This requires test performance scores for a large group of children, and certain statistical constants of the data to serve as standards. Thus it is found that about 70 percent of nine-year-olds are able to name the year, month, day of the week, and date. A child who cannot do this and who is nine or more years of age is obviously lacking in at least this achievement.

The numerical scores measure a certain type of performance of a certain child at a certain time. The performance may be verbal or manual; it may involve visual, cutaneous, kinesthetic, or auditory sensitivity; it may be influenced by emotional conditions, physical condition, or other factors. The performance of this child at this time is no guarantee that a future performance will be exactly the same, or that his success will be of a similar degree on another type of test. However, experience and experiment have given us some data by which to predict performance from one test to another within certain limits. The child passes a test at a certain level. From past experience it is known that the ratio of this level to the expected level of performance at that age will remain approximately the same throughout the child's developmental period if there are no extreme changes in either his environment or his physical condition. This ratio in tests of the Binet type is usually called the I.Q. In concrete terms this means that the five-year-old child who has a 2.5-year performance on the Binet has an I.Q. of 50, and that at the age of fourteen or fifteen or over he will show approximately the same ratio, and therefore a performance level of around seven years. In most school systems this is about the age of children in the first or second grade. The probabilities are against this child's achieving much beyond these grades in academic work, and this, in turn, usually sets limitations on his future occupation.

When numerical scores of tests are used to compare one child's performance with that of other members of his group, or to make tentative predictions, care must always be exercised that the source of the score is clearly understood. A performance score in terms of age or expressed as a ratio with the life age, is quite different if earned on a performance scale or on the Binet. This is true whether the actual score is the same or is widely different on the two scales. The use of the I.Q. as a ratio to indicate performance relative to age is valuable but dangerous. No child has *an I.Q.*; rather he has ratio scores on every test he completes. These scores may be very different; and to pick one as being the "real I.Q." is unfair to the child, and destructive of any adequate understanding of him. It would be much safer to speak of "Test Age" and "Test Quotient" and in each case to qualify the expression with the name of the test upon which the score was earned.

From the point of view of clinical interpretation the opportunity to observe behavior is perhaps a more important value of tests than the numerical score alone. Tests may be thought of as a convenient way of presenting standard stimulus situations to the subject, the nature of his response to them giving clues to his behavior pattern. From certain of the responses we may evaluate success or failure and secure a numerical score. But many responses, even when he fails, may give valuable information. Thus performance on a formboard may be done in a satisfactory length of time, but the method of attack on the problem will indicate a lack of insight, or no conception of its possibilities. The Binet scores of two children may be the same; but one score is secured because of verbal facility and good memory span, and the other is achieved because of insight into problems and practical judgment. Hence the best clinical use of tests requires an analysis of the child's performance as well as the calculation of his score.

Furthermore, the child's behavior and reaction to the whole examining situation are significant. Even though the numerical scores may be exactly the same, the interpretation of the performance of a boy who eagerly attacks the problems, who endeavors to do his best, and who relies on his own resources, will certainly be different from that of another child who resents doing what is required, who shows no interest in the tasks, or who requires help and support from the examiner.

Often such behavior is very suggestive in leading to the discovery of the etiology of the particular problem. This value is illustrated in the following case, in which no significant information had been obtained from the mother; however, the child's test performance gave a cue. A six-year-old girl was brought to the clinic because she had made practically no adaptation to the first grade of the public school, although she had been in it for nearly a full semester. Since it was impossible to secure any response from her on any tests when the examiner tried to test her alone, the mother was asked to sit in the examining room. The girl now showed more interest in the tests; but when given the Witmer formboard, which she started to do with eagerness, her first simple error brought the response of turning to her mother, asking for help. With each subsequent block the child exhibited the same response, although the mother would not help her; however, the girl succeeded in placing each block in the proper recess without difficulty. This behavior immediately suggested that even at six the girl had not built up adequate habits of independent behavior. Upon questioning, the mother said that the child had been waited on pretty consistently not only by her father and mother, but by three older sisters as well. In fact, at six years she could not dress herself; instead, someone had to dress her each morning so that she could get to school on time. Having failed to build up adequate independence, this little girl was having a difficult time adjusting to the vagaries of her six-year-old school companions.

Although tests do have a definite value in the examination, they may be used without judgment, and consequently do positive harm at times. There are still people who are willing to make a diagnosis on the basis of a single test result, and by their diagnosis label a person as feeble-minded, retarded, unstable, or what not. This is a criticism of the examiner, not of the examining tool. However, there are several points of caution that may well be emphasized.

1. The tests give only an approximate measure of the child's performance at a particular time and in terms of comparison with others. Great caution must be used in interpreting the results of tests without evidence from the child's everyday behavior for corroboration. For example, a boy of eighteen with a test performance of seven would on the basis of the test result be called feeble-minded. Yet this boy is making an adequate living, and his employer finds him a satisfactory workman. Certainly a diagnosis of feeble-mindedness in this case must be qualified in some way.

2. Any test is constructed to measure, however inadequately, only one thing, and it must not be held responsible if it does not measure everything. Many of the tests which are under discussion are measures of so-called general intelligence or other kinds of ability. They are useful only as indicators of the kind and degree of ability a child exhibits. The author once heard a psychiatrist who was addressing a medical meeting criticize intelligence tests because, among other things, they told nothing about the emotional life of the child. On such reasoning as this, the physician had better dispense with his clinical thermometer because it does not tell

him the patient's blood pressure, or, conversely, he should discard his sphygmomanometer because it does not record temperature. If the analogy were continued far enough, modern diagnostic tools would all be thrown into the scrap basket. Yet there is a certain amount of truth in the criticism. Too often untrained or partly trained examiners are apt to consider intelligence test results as being the best and final criterion of a child's behavior.

3. A further caution regarding the results of testing must be given. In spite of all attempts to make testing objective, whenever one individual is questioning another there are inevitable subjective factors which enter. These factors usually operate to reduce the scores. It is a safe assumption in all testing that whatever score a child makes, it is certainly not too high. About the only means of securing a fictitiously high score, one that could not be made on a second trial, is by coaching; and this is so infrequent that the possibility must be considered only in extremely rare cases. The possibility of a fictitiously low score on any one examination is, however, very great. The examiner's personal manner and attitude, the child's physical and mental condition, disturbing stimuli in the physical environment, interruptions during the examination, inadequate preparation of the examiner, language difficulties of the child—all may operate to reduce the performance record. Bronner (*18*) has described cases illustrating several attitudes that affect performance on intelligence tests. Included in her list are: (a) deliberate deception; (b) recalcitrancy; (c) sportiveness (lack of seriousness); (d) emotional disturbances, including general depression, anger or resentfulness, fear, sheepishness or a feeling of shame, shyness, embarrassment because of onlookers, homesickness, mental conflict; (e) general nervous excitement; (f) lack of confidence; and (g) a combination of these or other causes not easily analyzed. Therefore, interpretation of the test scores must be based on the possibility of influence exerted by such factors. There appears to have been little systematic and extensive exploration of such influences on performance, but the available evidence warrants caution in interpreting test results when these factors are operative.

PSYCHOLOGICAL TESTS

It is not pertinent in this book to consider all the problems and methods of measuring human behavior so well discussed elsewhere (*3*, *6*). In using testing instruments of whatever sort, the clinician must be aware of their statistical characteristics, e.g., the adequacy and nature of the standardization group, the reliability and validity, the nature of norms and scoring methods. Inadequate statistical characteristics may prohibit specific predictions, but they do not necessarily eliminate a test from the category of useful tests. Thus there is a great deal of discussion concerning the statistical adequacy of projective techniques, yet only a short-sighted clinician would refuse to utilize them for the values they do have. As mentioned earlier, tests are convenient ways of presenting standard, ar at least similar, stimulus situations to a subject. Psychological insight in interpreting the responses to such stimuli is of equal or, in certain instances, of greater value than is the determination of a quantitative score.

For our purposes the following kinds of test will be described in more detail:

1. *Intelligence tests.* Tests of this type are intended to measure "general ability" as revealed through verbal, manipulative, or other behavior. Although they are frequently thought of as measuring ability independently of the subject's experience, even a cursory examination of the nature of the instruments makes such a position untenable. Measurement of ability is important in studying many problems such as retardation, subnormality, or school achievement.

2. *Personality and conduct measurements.* Measurements or standard descriptions of "personality" pattern and conduct are of coördinate importance to measures of ability. The problems of measurement in this area have not been solved so satisfactorily as in the field of abilities, but very useful clinical tools are available. In one sense these procedures afford more efficient ways of securing information which could be discovered only by extensive observation and interview. However, they also may reveal characteristics which could probably not be shown in any other way.

3. *Educational achievement.* Achievement tests measure a special kind of ability, viz., that which is obviously and admittedly dependent upon the results of designed learning or training situations. These tests are available for many of the special subjects taught in schools, and are therefore of great importance in studying the behavior status of school children.

4. *Aptitude tests.* Aptitude tests are likewise largely a special type of ability test designed to reveal abilities necessary in certain occupations

or forms of activity. This category also includes instruments designed to show patterns of interest which have been found characteristic of special groups.

5. *Social measures.* Inasmuch as the child lives in and must adapt to a social culture, the clinical psychologist is interested in measurements of both the degree of social adaptation and the social milieu in which the child lives. Instruments intended for both of these purposes are included in this category.

INTELLIGENCE TESTS

There are many tests available to measure general ability which require both verbal and manipulative performance. The discussion here must be limited so special attention is paid to several of the most widely used instruments falling into three types: verbal or combined verbal-nonverbal scales, manipulative nonverbal tests, and preschool scales.

VERBAL SCALES

While the tests to be considered in this section do include nonverbal manipulative items they have a heavy weighting of items requiring language behavior. Louttit and Browne (*39*) found the first two tests in order of frequency of use in clinics were the Binet and the Wechsler. Because of their importance and the fact that they can be considered prototypes for tests of this sort they are the only instrument to be described.

Binet Tests

The *New Revised Stanford-Binet Tests of Intelligence* is the latest revision by Terman and Merrill (*63*), of a test which has been in constant use for half a century. The first form was published in 1905 by Alfred Binet and Theodore Simon (*17*) who had devised the scale for measuring the ability of backward school children in Paris. This scale was translated into English by Goddard and it, or revisions of it, began to be used in schools and institutions for the feebleminded. In 1916 Terman (*62*) published a revision based upon an extensive program of examination of school children. This 1916 scale held the foremost place until supplanted by the revision to be described.

The current form of the Binet test, commonly called the *1937 Binet,* consists of 122 items plus 7 alternate items arranged in 29 groups: 6 items for each half year for year II to IV; 6 items for each year V to XIV; 8 items at average adult; 6 items in superior adult groups I to III.

The tasks which make up the test range from simple ones such as identifying parts of the body on the picture of a doll in year II-6, to interpreting proverbs or solving mental problems in the superior adult groups. Because of the wide familiarity of this test and the ease with which the testing materials may be secured, there appears to be no reason for reproducing it here. Terman and Merrill's *Condensed Guide* and the printed testing material published by the Houghton Mifflin Company are both necessary, and will be found sufficient for children five years of age and older. For younger children the toy-type equipment is required. Terman and Merrill's *Measuring Intelligence* presents a complete discussion of the theory, standardization, use, and value of the test. Their book may also be used as a testing manual, since it contains complete directions for both forms, together with samples of correct responses and a discussion of the value of each item.

The examiner presents to the child tasks suitable for his age and ability. The object is to afford him an opportunity to pass as many items as possible. To achieve this purpose, all numbered items are given from the year in which the child passes all, including those in that year, up to and including the year in which he fails all. For example, a boy passes all the tests in the fifth year, four in year VI, two in VII, one in VIII, and none in IX. In this case the years V and IX define the boundary of his spread or range. The first of these is called the basal age, usually defined as the highest year in which the child passes all the items. The upper boundary of the range is defined as the year in which all items are failed. However, a child sometimes passes one or more items in a higher year than the upper boundary of his range; e.g., he fails all of year IX but passes one in year X. In such cases the proper credit should be given.

In administering the tests care must be taken to follow the wording of the directions exactly; an unintentional change in the wording may alter the meaning, and the response will not be comparable to the standards. Concerning administration, careful reading and rereading from time to time of Chapter 4 in the Terman-Merrill text is recommended.

The items of the Binet are placed in their respective age groups on the basis of being passed by children in the standardization group. Therefore an average six-year-old child might be expected to pass all the six-year tests, but none higher. As the items vary a good deal in the performance required, it is very rare that a child fails all the items higher than his basal age; there is usually a spread, as previously described. To score a performance it is necessary to reduce all passes to one score. This is done by adding to the basal age a certain number of months' credit for all items passed above the basal age. The credits given for the various items are shown in Table 4.

TABLE 4. Credits on 1937 Stanford-Binet Test

Year Groups	Number Items	Months Covered	Months Credit
II to IV	6	6	1
V to XIV	6	12	2
Average adult	8	(16)	2
Superior adult I	6	(24)	4
Superior adult II	6	(30)	5
Superior adult III	6	(30)	6

It should be noted that year groups II to IV cover half-yearly intervals, so each item is worth one month; from V to XIV the groups are for one year and the items are worth 2 months; the adult groups vary in the number of items and the values given—actually they do not cover a certain number of months in the same sense that the lower groups do, so the analogous month values are given in parentheses.

Scores obtained by this addition are usually spoken of as the mental age, M.A.; but since several tests are scored in similar terms it is better to qualify this by calling these scores the Binet M.A. The M.A. is a measure of the child's performance level in terms of the median performance expected of an unselected sample of children of his chronological age.

If we compare two children—one six years C.A. who has an M.A. of five years, and one of twelve years C.A. who has an M.A. of eleven years—it is evident that, although the absolute retardation is the same in both cases, the younger child is relatively more retarded. We express this relation of the child's M.A. to his C.A. as the I.Q. (intelligence quotient), which is defined as:

$$\text{I.Q.} = \frac{\text{M.A.}}{\text{C.A.}} \times 100$$

Here again the value secured should be qualified by being called a Binet I.Q. to distinguish it from similar values obtained with other tests.

Under certain circumstances this formula for the I.Q. is not suitable; in fact, it is questionable whether, under these circumstances, the I.Q. has any meaning at all. This is true with adult subjects. The 1937 revision provides a table of corrections for the C.A. division for subjects over 13 years of age which reaches a maximum of 15 years. These corrections should be used in relation to performance on this revision, but are not necessarily valid for other tests.

Interpretation of the Binet. The scores we have described are of value in quantitative interpretation. The M.A. or I.Q. as a mere number has no meaning. Most decidedly we must avoid thinking of these values as having a relation to some arbitrary unit as the gram and meter have. They have meaning only in relation to known values for large numbers of children. The following tabulation gives the classification of I.Q. values which has been in wide use since it was first published by Terman (*62*):

Above 140	Near genius or genius
120–140	Very superior intelligence
110–120	Superior intelligence
90–110	Normal or average intelligence
80–90	Dullness, rarely classifiable as feeble-minded
70–80	Borderline deficiency, sometimes classifiable as dull —often as feeble-minded
Below 70	Definite feeble-mindedness

There is reason to believe that these values are too high, especially for the higher feeble-minded and the lower normal groups. In this borderline range so many factors affect the individual's social adjustment, which in the last analysis must be the criterion of feeble-mindedness, that a modified scale of values is necessary. Although no generally accepted scale has been published, the following rather flexible I.Q. classification has been used for first approximation by the present author in different clinics for a number of years:

0 to 15–20	Idiot
15–20 to 45–50	Imbecile
45–50 to 60–65	Moron
60–65 to 70–75	Borderline
70–75 to 80±	Very low normal
80± to 85±	Low normal
85± to 90±	Slightly below average normal
90 to 110	Average
110 to 115	Slightly above average normal
115 to 130	Superior
Above 130	Very superior

The boundaries between each of these groups are intentionally made to overlap. In the lower group this overlap is expressed by ranges for the boundaries, and in the middle range by use of ± to indicate variation of a few points above or below the value given. A similar indetermination of boundary is true in the average and superior groups, but here its clinical importance is not so great. Thus is indicated the fact that hard and fast divisions between groups on the basis of I.Q.'s cannot and should not be made.

For children at least, a value of these scores lies particularly in the possibilities of predicting school achievement. Table 5 shows the relation of M.A. to grade placement for schools having six years as the entering age. Educational expectations of children with different I.Q.'s are suggested by the data in this table.

TABLE 5. Mental Age Standards for the Different Grades

Grade	Beginning	Average M.A. at Mid-Grade	End
I.	6–6	7	7–5
II.	7–6	8	8–5
III.	8–6	9	9–5
IV.	9–6	10	10–5
V.	10–6	11	11–5
VI.	11–6	12	12–5
VII.	12–6	13	13–5
VIII.	13–6	14	14–5
H.S.I.	14–6	15	15–5

If we consider fourteen as the average mental age of adults, we may interpret the values of various I.Q.'s in terms of school achievement, as shown in the following paragraphs:

The child with an I.Q. below 50 will have a maximum ultimate M.A. not over seven or eight years. Therefore he will probably never do first-grade work adequately, and it is probably useless to start such a child in the public school. With I.Q.'s in the 50's we may expect nothing higher than second-grade achievement.

Children with an I.Q. of 60 to 65 are usually severely retarded in school. At the age of six their mental ability is only four, barely over half of that required for the first grade, as shown in Table 5. After ten years of struggle, when the child has reached the upper age limit for school attendance, his mental ability will then be only about nine years, or the median mental age for Grade 3. However, he will probably begin fourth or fifth grade largely because of his size—certainly not because of his achievement.

With an I.Q. in the 70's a child's ultimate educational achievement is probably to be placed at about the fourth or fifth grade. Seldom does he get beyond this point, regardless of the time he stays in school.

Children with I.Q.'s from 80 to 89 have an ultimate mental age ranging from eleven to thirteen years. This means that they can probably be expected to complete the seventh or maybe the eighth grade, especially if they are given special attention.

The range of average I.Q.'s, from 90 to 110—or, as some authorities divide it, from 95 to 105—includes the children who make up the bulk of the school population. Those at the lower end of the range frequently have difficulty in high school if they ever finish eighth grade, and those at the upper end represent the average of high-school graduates.

Children with I.Q.'s higher than 110 of course constitute a superior group. Those with I.Q.'s less than 115 may have some difficulty in college. But for those in the still higher levels, achievement is limited only by opportunity and effort.

Wechsler Adult Intelligence Scale (WAIS)

Although the Binet test has item groups for adolescent and adult years it is generally recognized that this scale is not satisfactory for use with older adolescents or adults. The need for a test for older subjects led to the publication of the *Wechsler-Bellevue Intelligence Scale* first in 1939 (65). Recognition of its value was immediate and its use in clinics is second only to the Binet (39). Following very extensive research with the Wechsler-Bellevue for 15 years a completely revised form, the *Wechsler Adult Intelligence Scale* (67), was published in 1955. The following description is of the new WAIS, although data on the earlier form are used where necessary.

The scale includes eleven tests, six of which are verbal and five are nonverbal. Verbal tests are: information, comprehension, arithmetic, similarities, digit span, and vocabulary. Nonverbal tests include digit symbol, picture completion, block design, picture arrangement, and object assembly. The items are not grouped by ages but in each test they increase in difficulty. The subtests are scored variously for speed, accuracy, comprehension, or ability to discriminate and analyze. Point scores are given for different degrees of performance; these scores are then weighted and added to give a total point score which may be converted into an I.Q. It is to be noted that no M.A. score is computed on either the whole scale or any subtest. However, the various subtest performances may be compared by the use of tables showing deviations of the various subtest point scores from the mean or full-scale point score.

Although the Wechsler I.Q's are secured in a manner different from Binet I.Q.'s they may be interpreted in a similar manner. In fact there is an appreciable correlation between the two. Watson (7) summarizes eight studies reporting eleven correlations between the *Wechsler-Bellevue* and Binet which range from 0.62 to 0.93, with a median of 0.89 and a mean of 0.84. The WAIS is reported to have a correlation with the Binet of 0.85. Although the correlation between I.Q.'s on the two tests are high there is not an exact correspondence between them. At lower I.Q. levels the Wechsler is apt to be higher than the Binet while at superior levels the opposite is true. Benton, Weider, and Blauvelt (*15*) from data on adult psychiatric patients indicate that at Binet I.Q. level 40 the Wechsler I.Q. is 59, at I.Q. 90 they are the same, and at a superior level of Binet 150 the Wechsler is only 129. This illustrates very well the earlier caution that an I.Q. has meaning only in terms of a particular test. The professional use of the Wechsler recognizes the differences from the Binet—or other tests—when using the performance in clinical appraisal.

Wechsler Intelligence Scale for Children (WISC)

The success of the *Wechsler-Bellevue* scale with adults led the author to extend the test downward and to standardize the same or similar material on children. The *Wechsler Intelligence Scale for Children* (*57, 66*) has twelve subtests of which two are for optional use. The verbal tests include information, comprehension, arithmetic, similarities, vocabulary, and digit span as an optional test. The nonverbal group includes picture completion, picture arrangement, block design, object assembly, coding, and mazes as an optional test. I.Q.'s are derived from point scores as in the adult tests. Reported correlations with the Binet are slightly lower than those mentioned above with the adult test; they are of the order of 0.80. There is an increasing number of studies being made of this instrument, which has proved useful although it will probably not supplant the Binet.

PERFORMANCE TESTS

Perhaps the chief criticism of verbal tests is that they place a decided premium on facility in the use of language. The directions are given verbally and many of the responses are oral. Criticism of the language weighting of these tests indicates the necessity for using nonlanguage type instruments for evaluation in the psychological clinic. In general, such tests eliminate language responses and many may be administered with a minimal use of verbal directions. The variety of performance required on these tests makes simple classification difficult. We shall consider maze tracing, drawing, formboards, and picture completion.

The qualitative psychological analysis of behavior in the stimulus situations presented by performance tests has values beyond the numerical score which may be achieved. In an early analysis of formboard performance, Young (*68*) indicated a number of physical and psychological factors which may be observed. His list of observable factors may be grouped into eight categories: physical adequacy, vitality, attention, imagination, movement, sensitivity, memory, and attitude. While scores on such categories are not secured, the clinician may make very useful subjective evaluations of them which enrich the descriptions of the child's test behavior.

Much of the value of performance tests lies in this qualitative observation. Some children with quick, accurate perception see the relationships at a glance and put blocks or parts in their proper places in a swift, workmanlike fashion, while others whose quantitative score may be almost as good use a trial-and-error method, working quickly perhaps, but showing little insight. Still others may use a trial-and-error method, but in a haphazard fashion, neglecting one block or piece because it does not immediately fit and trying another one. Perhaps the poorest type of performance is seen in very young children and more especially in defectives, when the subject is content to place the blocks in any holes, and having placed them, perhaps not a single one correctly, sits back with an air of complete satisfaction at a task well done.

Porteus Maze Test

With the object of overcoming certain criticisms of the Binet scales, Porteus (*49*) published a graded series of mazes which he felt might prove to be a "somewhat valuable supplement to, and partial corrective of, the Binet-Simon Scale." After these tests were published, some critics accused Porteus of claiming too much for them. However, the evidence assembled in the most recent review (*50*) has more firmly established their clinical usefulness. It must be remembered that the Porteus Maze cannot, nor did its author ever claim it could, supplant tests of the Binet type. Louttit and Stackman (*40*), who summarized the literature on the relations between the two tests, conclude that, although there is a paucity of experimental evidence, the available data suggest that the Binet and Porteus tests are supplementary. Moreover, performance on the maze scale gives indications of traits that may be entirely concealed in performance on other types of tests.

The Maze test consists of a series of successively more complex mazes to be traced directly on the test sheet with a pencil. Examination of the series indicates the increasing complexity but basic similarity of the tasks. For subjects older than five years the test series is always begun with year V, because the standardization is for the series as a whole; in other words, practice at the lower ages is important. Mazes for year III and IV are used only for very young or very defective children. Successive mazes are presented until the child fails any three tests or two successive ones above year VIII. Two trials are allowed at each year up to XI, and four trials on each of the higher mazes. An error consists of drawing the line across an imaginary boundary to a closed path, or in crossing a printed line. When such an error is made, this trial is stopped and the child begins again on a new blank. Two such errors for a single year constitute failure. The score on the Maze is expressed in terms of a performance age, which may be called a Maze age or a Maze mental age; this is often expressed as a Porteus M.A. For each test from V to XI that is passed on the first trial a one-year credit is given, but if it is passed on the second trial only a half-year credit is given. Performance on years XII and XIV are considered together and credit from one to four years given according to the number of trials required. The total amount of credit is added to a constant basal year of IV because, as we have said, the test always begins with year V no matter what the child's age. A ratio analogous to the Binet I.Q. may be calculated from the Maze age by dividing it by the C.A. Although this ratio, the M.Q., has a similar meaning in relation to achievement on the Maze test, it cannot be used in predicting school success as can the Binet I.Q.

In addition to this quantitative score there has been developed a method of evaluating the quality of performance, which is described, together with administration and qualitative scoring directions, in Porteus's latest review of the test (*50*).

While the quantitative score on the Maze is expressed as a performance age analogous to the Binet or Wechsler scores, it cannot be used as a substitute for them. Reported correlations between the Binet and Maze scores vary widely with a central tendency at about 0.60 (*38*). While this is an appreciable correlation it does not allow direct substitution of scores. Further, the qualitative aspects of performance suggest the importance of other behavior characteristics.

In suggesting the interpretation of Maze performance, Porteus (*5*) said that a high Maze score, especially one higher than the Binet score, indicates "good practical ability or a stable temperament." He lists fourteen qualitative points of behavior that may be significant if the Maze score is low absolutely and/or in relation to the Binet score. Five of them characterize impulsive performance, such as too great speed, careless execution, lack of consideration at points of choice even though overall planning may be evident, slight errors of direction even though no lines are crossed, and persistent removal of the pencil from the paper. Actual lack in planning capacity may be indicated by such behavior as asking unnecessary questions, indecision at choice points, repetition of errors on new trials, too precise or too heavy and irregular lines, easy discouragement, failure on the first trial several years below the final level reached. There is some evidence that delinquents tend to show instability on the Maze and thus secure lower scores than might be expected from their Binet performance.

The Draw-a-Man Test

Children's drawing and painting as forms of aesthetic expression as well as a type of projective technique have been the subject of an extensive literature. As early as 1885 according to Goodenough (*31*), Ebenezer Cooke pointed out a relation between children's drawing and the progress of child development. Taking her cue from this and subsequent studies, Goodenough established age standards for the simple task of drawing a man.

This is a very useful clinical test, although it can also be used for group testing in a classroom. The only materials required are white paper (formal blanks are, however, available) and a pencil (not crayon). The child is told to make a picture of a man; he is to work carefully and use all the time he needs. The resulting drawing is scored by points for 51 different details. The point score is converted into a performance age score by means of a table given in the manual. Although the maximum point score may be equated to a M.A. of 13.5 years, the test is probably most useful with children between six and ten years of age.

The correlation between the Binet I.Q. and the drawing I.Q. on 334 children between four and ten years was $r = 0.74$. Porteus (*5*) reports an r of 0.69 between the same measures on 40 clinic cases at the University of Hawaii. A correlation of this order enables the use of the Draw-a-Man score as a tentative substitute for the Binet score if the latter is not available; however, great caution must be exercised in interpreting results in this case. Qualitative interpretation of the performance might emphasize such factors as accuracy of detail, appreciation of relations, adequacy of motor coördination, use of proportion, special cultural indications in the clothing shown, and, in certain children, indication of projections of personality pattern.

Formboards

The commonest type of test which requires manipulative performance presents the child with the task of replacing variously shaped blocks in similarly shaped recesses in a base board. The prototype of all formboards was first devised by Seguin for use in training feeble-minded children. Norsworthy (*44*) later used the board in examining feeble-minded persons. This board, as further modified by Goddard, had ten blocks—equilateral triangle, square, diamond, oblong, semicircle, truncated lozenge, star, circle, oval, and cross—each of which had a similarly shaped recess into which only the proper block would fit. In later modifications the size and number of blocks were changed, the blocks were kept similar in shape but altered in size, two or more pieces were provided for each recess, and the complexity was varied for different ages from the round and square pegs of the Wallin Peg Board to the complicated patterns of the Worcester Formboard (*35*, *58*).

Some of these variations are shown in Figure 2. The Goddard Formboard is the lowest in the center; to the left is the Casuist Formboard, and above are the Two-Figure and Five-Figure Formboards, all of which have two or more pieces for each recess; to the left of the Five-

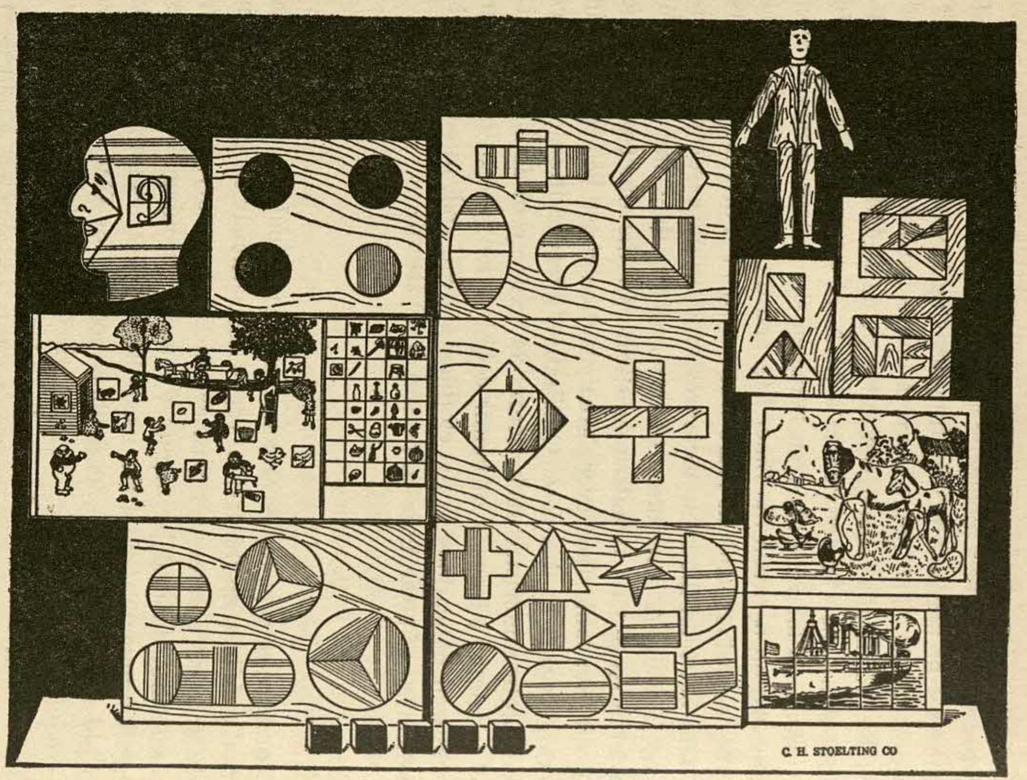

FIGURE 2. Pintner-Paterson Performance Scale, Long Form. (Courtesy C. H. Stoelting Co.)

Figure board is the Adaptation Board, in which the circular block will fit only one hole, the task being to pass the block through the proper hole as the board is rotated around its several axes. To the right of the Two-Figure board are three small boards, each having a puzzle element not found in the others. For detailed descriptions, references, directions, and norms for these boards the reader is referred to the excellent manuals by Bronner, Healy, Lowe, and Shimberg (*19*), and the work of Schieffelin and Schwesinger (*54*).

In general, the measure of performance in tests of the formboard type is the time required to replace the blocks, although errors and moves are sometimes counted. The raw time scores vary among individuals and with age, and it is therefore necessary to convert them into some form of derived or secondary score, which, in the case of time scores, is usually a percentile. If a formboard or any other test is given to 1000 children of a single age, the scores will vary a great deal. Some children will be extremely slow, and others will be very fast; but the majority will be grouped about a mid-score, which is the average. The thousand scores can be arranged in order from the slowest to the fastest, and this series then divided into ten groups of 100 each. The 100th score is called the first decile or the tenth percentile; it represents the score which 10 percent of the children equal or are inferior to, and which is exceeded by 90 percent. The 25th, 44th, 89th, or any other percentile is found similarly.

There is another possible way of interpreting formboard time scores. The median value may be roughly interpreted as the average performance age for that chronological age. It is clinically useful to equate a given child's performance to the median performance for the same age. Thus a ten-year-old child whose time on a formboard is equal to the median time for eight-year-olds can be considered as having only eight-year-old performance. We can compare this to his own chronological age just as we did with the Binet and Maze scores. Arthur gives age equivalents for the performance items of her scale that we shall describe later.

Picture Completion Tests

In picture completion tests we shall include all performance tests that have in common the task of completing a picture in some manner; this may involve filling in missing sections, putting a picture together, etc.

Although much the same type of performance is required as on the formboards, there is in addition the meaningfulness of the picture, and therefore a somewhat higher requirement in the way of ideation or insight. The directions usually call for the child to put the picture together or to fill in the missing parts from additional pieces supplied. Scores may be in terms of time, as in the Mare and Foal, or in terms of correctness of response, as in the Healy Picture Completion tests. The Mare and Foal and the Ship tests are shown in Figure 2 at the lower right; the Healy Picture Completion Test Number 1 is the center test in the left-hand group in that figure, and the Healy Picture Completion Test Number 2 is shown in Figure 3. Since these tests are much like games they serve a useful purpose in arousing a child's interest, and therefore offer a convenient means of establishing rapport. As in the formboards, qualitative observation of the child's performance is probably of as great clinical importance as the quantitative scores.

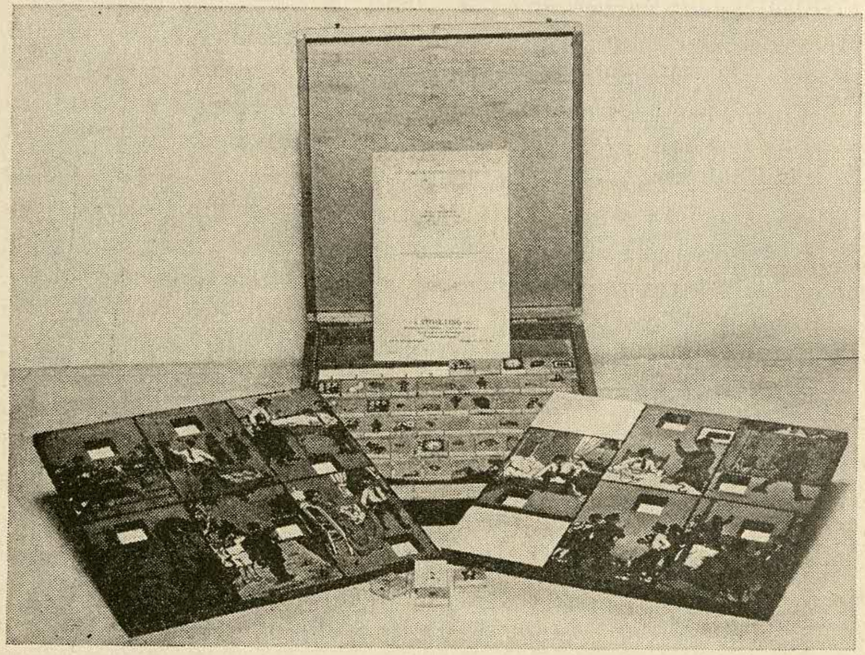

FIGURE 3. Healy Pictorial Completion Test II. (Courtesy C. H. Stoelting Co.)

Miscellaneous Tests

A number of frequently used manipulative performance tests do not lend themselves to categorization. In the Knox Cube or Cube Imitation Test the child has to repeat a pattern of taps made on five blocks in a row. The Feature Profile and Manikin require that a face and body, respectively, be completed (Figure 2, top, left and right). Slot Maze A requires the moving of a marker through the open pathways of a maze cut in sheet metal. In the Kohs Block Design Test the child reproduces a model colored pattern with one-inch colored blocks. Tests of this sort are scored by time or accuracy and the scores may be indicated as percentiles or performance ages. Here again it is well to repeat that the quality of performance is as important clinically as the quantitative score.

Performance Scales

The change in performance with increasing age on any of the manipulative tests we have been considering involves either greater speed or more accuracy. The variety or complexity of these tests does not increase, as it does on the Binet or the Porteus Maze. This led a number of psychologists to combine several of these single tests into scales, the scores on which are perhaps somewhat more meaningful. Since these combinations afford a wide age-range scale that is not greatly dependent upon language ability, they are of distinct clinical usefulness. Three of the best-known and most adequate of these performance scales are the Pintner-Paterson, the Arthur, and the Cornell-Coxe, which we shall describe briefly.

The Pintner-Paterson Scale. This scale, devised by R. Pintner and D. G. Paterson (47), is offered in a long and a short form. The long form, shown in Figure 2, includes the following tests:

1. Mare and Foal
2. Seguin Formboard
3. Five-Figure Formboard
4. Two-Figure Formboard
5. Casuist Formboard
6. Triangle Test
7. Diagonal Test
8. Construction Test A
9. Manikin
10. Feature Profile
11. Ship Test
12. Picture Completion Test I
13. Substitution Test
14. Adaptation Board
15. Cube Imitation

The short form includes Nos. 1, 2, 3, 4, 5, 9, 10, 11, 12, and 15 in the above list. Points are allowed for performance on each of these, and the points are combined into a composite score from which an M.A. or percentile rating may be secured. The scale is most useful for ages four to fifteen.

The Arthur Scale. This point performance scale was devised by Grace Arthur (*8*, *9*). In its final form it includes the following tests:

1. Cube Imitation
2. Seguin Formboard
3. Two-Figure Formboard
4. Casuist Formboard
5. Manikin and Feature Profile
6. Mare and Foal
7. Healy Picture Completion Test I
8. Porteus Maze
9. Kohs Block Design

Performance on each of these tests is given point credit, and the sum of these points may be converted into an M.A. This scale is intended for use between the ages of five and fifteen.

Cornell-Coxe Performance Ability Scale. This scale, devised by Ethel L. Cornell and Warren W. Coxe (*26*), includes the following tests:

1. Manikin and Feature Profile
2. Block Design
3. Picture Arrangement
4. Digit Symbol
5. Memory for Designs
6. Cube Construction
7. Healy Picture Completion Test II (No. 7 may be used as a substitute for No. 3)

It will be noticed that this scale includes a number of tests not used in either of the others. The scale is standardized for ages six to 15.5. A weighted system of point scores is used and these may be equated to mental ages.

Interpretation of Tests and Scales

Probably the first thing that one wants to know concerning the meaning of scores on these tests is their relation to Binet performance.

Arthur consciously endeavored to have the scores on her scale comparable to Binet scores. The tables she presents (9) indicating the relation between the Binet and performance scores show a high degree of correlation for the younger years 5 to 9, but the correlation decreases at the older years. The performance I.Q.'s for 50 percent of her cases fall within 5 points of the Binet I.Q.'s, a degree of agreement that is almost as close as that found on repeated Binet examinations. The Cornell-Coxe Scale is reported to correlate 0.79 with the Binet, but this r is uncorrected for C.A. and hence the true correlation is lower. In general, it seems safe to say that scores on performance tests or scales cannot be directly substituted for Binet scores, but they are valuable supplements.

In those circumstances in which tests strongly emphasizing language are not usable—e.g., with deaf, mute, illiterate, or foreign-language-speaking children—performance scales give an estimate of abilities that may be significant. Although there appear to be no studies showing the relation between these performance scales and academic achievement or occupational success, it would seem that they should afford some indication of abilities along concrete, manipulative lines. To use a homely and perhaps not quite accurate comparison, performance scales are tests of "doing," while scales of the Binet type are tests of "thinking."

Interpretation of several test results. Scores from several different tests when expressed in similar terms—i.e., as mental ages, quotients, percentiles, or standard scores—are occasionally averaged. This procedure is not valid because the different scores do not have a sufficiently similar meaning. Furthermore, by averaging, the differences in performance are ironed out and many of the possibilities of interpretation are lost.

We may tentatively illustrate the possible interpretation of several test scores by fictitious examples. It is to be remembered that in these examples we know nothing except the test scores, whereas in ordinary practice we would know a great deal more about the child. Furthermore in usual clinical practice no very definite conclusion would be based on these scores alone. However, we can thus show the type of use to which scores may be put.

Example 1. A boy ten years of age has a performance age of eight-five on the Binet; eight-six on the Porteus Maze; and 32 seconds on his first Witmer Formboard trial which is the median for eight years, five to eleven months. There is little question here. The performance in all of these tests is about 85 percent of that expected from a child of ten years. His low score on the Maze is due not to impulsiveness but probably to the lack of the abstract sort of ability measured by the Binet.

Example 2. A boy of ten years has a performance age of seven-zero on the Binet; eight-seven on the maze; and about nine-six on the formboard. This variability is very suggestive. Prediction by the Binet would indicate that his academic achievement would be limited; he probably would not achieve much beyond fifth-grade work in school. However, his maze and formboard performances are considerably better than that on the Binet. Both of these tests involve the ability to deal successfully with immediate concrete problems. Taken together, the three scores suggest that he would have greater success with a mechanical type of occupation. Since his Binet is so low, and since even his manual performances are below average, we could not recommend engineering; but possibly work as an auto mechanic or machinist, or along similar lines would be suitable.

Example 3. For convenience we will again take a ten-year-old child. This boy has a Binet performance of ten-six; a Maze performance of seven-zero; and a formboard performance of ten-zero. With the Binet and formboard both average or better, and only the Maze low, it must be something other than inability to deal with abstract or concrete problems that has brought this score down. As we have seen, a low score on the Maze may indicate impulsiveness, or the lack of sufficient stability to bring the problem to successful solution. The conclusion here might be that this boy should be able to do academic work at least through high school, but that he may have difficulty in school, and later in a vocation, because of the possibility of poor social adjustment resulting from his lack of stability.

These three examples, while not in any measure exhausting the possibilities, do suggest that a group of test results taken alone may throw light on various aspects of a problem. However, we must emphasize again that in practice no very definite conclusions would be drawn on test results alone, no matter how many there were.

PRESCHOOL TESTS

The testing of abilities of preschool children, i.e., below six years of age, is difficult but extremely important. Difficulties arise because of the limitations set on the type of material that can be used. For example, language tests are almost entirely unsuitable. Moreover, young children are apt to be more diffident and to refuse to coöperate unless the materials are intrinsically interesting. Nevertheless, some estimate of the abilities of preschool children is of great importance for the early recognition of defects or superiorities, so that a satisfactory guidance program may be inaugurated early.

If we consider again the tests already discussed, we see that few of them are intended for young children. The Revised Stanford-Binet has test items for ages two years to five years. The Kuhlmann Tests of Mental Development (*38*) include tests for as early as four months. The Porteus Maze has forms for three, four, and five years, and some of the performance tests have forms for as low as four years.

Stutsman (*61*) has suggested certain criteria for selecting tests for preschool children. The materials in such tests should be of primary interest to the child; they should measure fundamental abilities, and should cover a wide range of activities. Furthermore, they should be easy to give; they should use simple materials, and should discriminate statistically between age levels. This last is of particular importance because accelerated growth at these younger ages requires finer discrimination.

Several scales have been devised for measuring the ability of children less than six years old, but we shall describe only three of these.

The Developmental Schedules

The evaluation of behavior development in infants must depend upon the adequacy of very simple performances which are the consequence of neuromuscular maturation. Arnold Gesell has studied such maturation persistently and has developed norms for human behavioral development at early ages. His *Developmental Diagnosis* (*30*) presents very completely the norms of development, methods of examining, and use of the schedules in relation to such behavior deviations as amentia, endocrine, convulsive, neurological, and sensory disorders, prematurity and superiority. The schedules include tasks for each four-week period from 4 to 52 weeks, and for 15, 18, 21, 24, 30, and 36 months. The tasks may be divided into four groups, viz., motor, language, adaptive, and personal-social behavior. The infant's performance may be represented by a maturity age score, which when divided by the C.A. gives a Developmental Quotient, D.Q. The D.Q. is an indicator of the proportion of normal development present at the time of examination. This quotient may be used to predict future growth on the assumption that the developmental rate is fairly constant. This assumption would not, of course, hold true in cases of special organic defect or of serious environmental lacks.

The Cattell Infant Intelligence Scale

This scale (*24*) is intended to extend the Binet scale to the lower ages. It covers the ages 2 to 30 months. The items included require the infant to look at, listen to, or handle objects, while the examiner closely observes the behavior. There are five items, with one or two alternates, for each month. The scoring is similar to that of the Binet, with credit being given for items successfully passed; an M.A. is secured from which an I.Q. may be computed. These scores are used like those from the Binet, but caution is necessary because of their instability, especially of the I.Q., in infancy.

Merrill-Palmer Tests

This scale, devised for use with preschool children from 1.5 to six years of age, was published by Stutsman (*61*), who worked at the Merrill-Palmer School in Detroit. It contains 93 tests arranged in order of difficulty. Some of them make use of identical material but are placed at different levels on the basis of stricter requirements for successful performance. As is necessary with tests for preschool children, many of the items are manipulative in character, although there are a number of very simple language tests. Credit is given in terms of points for each item correctly passed. Furthermore, the scoring method is so arranged that credit may be allowed for part of the items which are not given or which the child refuses to try. This unique feature is of decided value because young children frequently exhibit a negative attitude and refuse even to attempt some of the tasks.

The norms, although based on only 631 children, are particularly good because these children were selected from a wide range of socioeconomic classes. The allocation of items to a particular position was done with extreme care and is perhaps somewhat more reliable statistically then is true of the Stanford-Binet. The raw score is the sum of points earned. Stutsman's manual includes tables for converting the point scores into M.A. scores, S.D. (standard deviation) scores, and I.Q. equivalents.

NONINTELLIGENCE TESTS

The tests so far discussed have all been instruments for measuring general ability, or so-called intelligence. They are used to discover the individual's ability in language or manipulative performances, from which certain predictions can be made with respect to his future accomplishments. Such predictions are, however, never perfect because success on the test, and even more in life adjustments, depends to a great extent on factors other than those sampled by the test. The examining tools in areas other than intelligence which we shall consider fall into four groups: personality, educational achievement, interests and aptitude, and social adjustment and environment. Tests designed for use in these fields are both individual and group, the former being particularly intended for clinical use. However, the clinician can always use a group-type test with an individual subject, and he will frequently find it valuable not alone for the score obtained, but because analysis of responses throws further light on the problem.

PERSONALITY AND CONDUCT MEASUREMENTS

Personality-testing instruments may be grouped into two major categories. One, the inventories and rating scales, presents to the subject, or to an informant, a formal, structured stimulus situation, e.g., questions to be answered or trait names to be rated, and the responses are scored quantitatively. In tests in the second category, the subject is presented with an informal, ambiguous, nonstructured stimulus, e.g., ink blot, picture, or play situation, the responses to which will be influenced if not entirely controlled by his personality dynamics. Each of these types has its own uses and there is no reason to believe that the two are interchangeable in any sense. For clinical diagnosis the second type is probably far more useful than the first. Unfortunately, our discussion must be limited to little more than a description.

Two methods are in general use for measuring personality and conduct by tests in the first category: (1) the questionnaire or inventory, and (2) the rating scale. The questionnaire method was extensively exploited by G. Stanley Hall in a variety of psychological investigations many years ago. Woodworth's Personal Data Sheets, the first personality inventory, is an adaptation of the questionnaire method to its author's particular problem, that of determining neurotic tendencies in soldiers during World War I. In this schedule and in most subsequent schedules, the subject is presented with a number of questions or statements which he is to mark "yes" or "no," "true" or "false," or some similar alternative. A few schedules require more elaborate answers. The questionnaire is usually designed to be answered by the subject who is being studied.

If instead of giving merely a "yes" or "no" answer, the subject is required to discriminate more finely by responding with one out of five possible degrees instead of one out of two, this is a transition to the second method. Rating scales, as usually devised, require the person making the rating to ascribe a certain degree to a characteristic. Thus, on honesty he may rate on a scale with three, five, seven, or any other number of degrees ranging from extremely honest to extremely dishonest. An extension of this idea in the direction of finer discrimination and possibly somewhat greater precision is found in the graphic rating scale in which a linear scale is provided which the subject marks at any point. The actual distance in millimeters from either extreme can then be measured. Ratings on this type of instrument can be made by the individual for his own traits, or they may be rated by other people who know him.

Both of these methods are liable to serious error unless they are carefully devised and used. For example, items on a questionnaire may be of such a nature that the individual simply does not know the answer or finds that to answer an item correctly may be incriminating. In either case the validity of the schedule is materially reduced. Experiments with rating scales have shown that such factors as lack of familiarity with the person being rated, lack of comprehension of the traits or degrees being rated, and the "halo" effect (the rater's opinion of the subject as an individual) all operate to reduce the statistical validity of these instruments.

Catalogues of personality tests such as Buros' (*20–23*) describe a large number of instruments, but it is evident that only a small minority are particularly designed for children or for specifically clinical use. As typical examples of this type of test that are widely used in clinics we may mention the *Personality Inventory* by Bernreuter (*16*), the Haggerty-Olson-Wickman *Behavior Rating Schedules* (*45–46*), *Aspects of*

Personality by Pintner, et al. (*48*), Rogers' *Test of Personality Adjustment* (*51*), and Thorpe's *California Test of Personality* (*64*).

The second category of personality measuring methods, in which the stimulus situation is unstructured, is commonly spoken of as the projective technique, the term introduced by Frank (*29*). Most simply stated, a projective technique is one in which the stimulus situation has no experimenter-determined stimulus function, but is responded to as the subject gives it a personal, private meaning. Thus, instead of presenting him with the stimulus, "Do you cry easily?" and requiring a "Yes" or "No" answer, in a projective method such as the Rorschach test the stimulus is an ink blot having no universal meaning; the subject responds to it in accordance with the experimenter's direction, "Tell me what you see on this card." Responses vary widely from subject to subject, but for a given individual there is every reason to believe that they are determined by the dynamics of his personality organization which in turn is a function of his experiential history.

There is an endless variety of stimulus situations which may afford the subject an opportunity to respond in a personal way. Even close observation of behavior in a formal testing situation, in organized play activities, or in specially prepared play or work settings may reveal personal "ways-of-behaving." More specific projective methods include the Rorschach ink blots, pictures (Murray's Thematic Apperception Test), sentence or story completion, finger painting, drawing, blocks, dolls, toys that give freedom to build or establish situations (play therapy), dramatic play including puppets and psychodramas, and the tautaphone, which presents an ambiguous auditory stimulus. Abt and Bellak (*1*) in their description of a number of the major forms of projective tests illustrate the values of such instruments for personality appraisal. Here we must be limited to a brief description of the Rorschach and Thematic Apperception tests.

The Rorschach Test

In 1921 Hermann Rorschach (*52*), an Austrian psychiatrist, published his experiences with the use of a series of ten ink blots as neutral stimulus situations in studying the personality of patients. His work was introduced in the United States by Levy in 1924 and has resulted in a very extensive literature comprising hundreds of titles. The materials for the tests are a series of ten ink blots printed on cards, some in black and white with variations in gray values, and some with color in varying hue and saturation. The subject is shown the cards one at a time in sequence and is asked to "tell the examiner what you see on each card, or anything that might be represented there." The examiner records both the responses which are given spontaneously and the answers to the questions which he may ask only after the subject has responded to all ten cards.

The response record is scored primarily in terms of certain formal categories and only secondarily in terms of content. There are differences in the scoring categories used by the various Rorschach workers which we cannot enter into. Beck (*11*), who most closely follows Rorschach, discusses the following categories and uses the symbols shown: Whole responses, W; detail, D, and rare detail, Dd; responses to white space, Ds and Dds; organization activity, Z; approach, Ap, and sequence, Seq; movement responses, M; color responses, C; responses determined by variations in gray values, light determined, FV and Y; position responses, Po; experience balance, Exp; form responses, F+ and F−; popular responses, P. In addition, the content is scored in 28 described categories. Scoring is not a simple matter of allocating the verbatim response to one or more categories, but must be done in accordance with certain procedures. The difficulties of scoring and the even greater difficulties of interpretation give substance to Hertz's statement (*33*): "The administration, scoring, and interpretation of the method and its data are complex and technical. Years of intensive and extensive training, practice and experience with the method and related subject-matter are needed."

The use of the Rorschach has been widespread; normal adults and children, the feeble-minded, psychoneurotics, psychotics, and behavior problem cases have all been studied. The problem of reliability and validity has been investigated without as yet any unequivocal results. Beck and Hertz argue for standards and experimental support of the method; Klopfer (*36*) is less concerned with such matters but successfully uses less formal and more intuitive methods of interpretation. Both methods are useful. The less formal affords information significant in understanding the specific subject. The more formal may likewise do this, but it also strives to determine characteristic patterns of response. Beck (*12*) says that four characteristic patterns have been validly established, viz., healthy adult of superior intelligence, the feeble-minded, the schizophrenic, and the brain-damaged individual. More detailed indications of problems and values are to be found in the books by Beck (*10*, *11*), Klopfer and Kelley (*36*), Bell (*2*), and Abt and Bellak (*1*).

Thematic Apperception Test (TAT)

Instead of an a priori meaningless ink blot, the TAT utilizes pictures as the stimulus situation to which the subject responds. Schwartz (*55*) first used a series of outline drawings depicting social situations in the psychiatric study of delinquents. The TAT itself was first described by Morgan and Murray (*41*) and was used extensively by the latter (*42*) in his study of the personalities of college students.

The standard materials (*43*) are a series of photographs or pictures printed on cards. These are presented one at a time to the subject, who is asked to tell the story of the picture. Responses are recorded verbatim, or as closely as possible, and analyzed according to the major themes revealed. Such themes may be family relations, emotional attitudes, vocational ideals, etc. There is no numerical scoring in the usual sense. The recurrence of themes in several pictures, the meaningful relation between themes, or the occurrence of unique themes is significant in revealing personality characteristics of which the subject himself may not be aware. Rotter (*53*) has described a method of analyzing the response stories that is relatively independent of any preconceived theory of personality such as that upon which Murray's analysis depends.

The Bellaks (*14*) have introduced a set of pictures having animals as characters which is designed to make a thematic apperception test more suitable for use with children. Known as the Children's Apperception Test, CAT, this test is administered similar to the TAT but with less formal instructions. The interpretation of responses also follows the pattern of the TAT.

These two projective techniques are, according to Harrison (*32*) and others, supplementary rather than substitutive, because the Rorschach responses as usually categorized and interpretation deals with a static personality structure, while the TAT responses reveal actual emotional attitudes toward events and persons in the subject's experience. In dealing with children, the TAT and the CAT appear to have the greater clinical significance. This of course does not mean that the Rorschach has no place in work with children, but it does advise caution lest the child be labeled with a particular "personality" or "character" tag which does little to solve his problem.

EDUCATIONAL ACHIEVEMENT TESTS

As the aims in teaching school subjects are usually established and universally recognized, and as the content necessary to achieve these aims has been definitely selected, it is unnecessary to depend upon teachers' grades as the only measure of the child's achievement. In many schools such subjective marks have been supplanted or supplemented by more objective scores on standardized achievement tests. Thus, from the child's success on a standard reading or arithmetic test we have an objective measure of just how much he knows in these subjects. Another use of standardized educational tests, and one for which many of the newer tests are specifically designed, is the determination of the child's specific difficulties in a given subject. Tests so designed are usually called "diagnostic" tests.

Both of these uses are obviously of value in the clinical examination of children. However, the clinician's interest in the child's school work is usually in the "tool" subjects—reading, arithmetic, spelling, and writing—for mastery of these subjects is of essential importance in all future academic achievement. Therefore, when the complaint is poor school work, but the intelligence test performance is satisfactory, exploration of these tool subjects by means of available testing instruments is indicated.

It is impossible to consider achievement tests in detail in this book; instead, the reader is referred to special books on the subject. Usually these are group tests, but they may of course be given to individuals. As a rule, the presentation, marking, and scoring are similar to the procedures used in group intelligence tests. Most of the norms are given in terms of age; i.e., the average performance for children of a given age is found to be so many points. Some tests also supply grade norms, but these are probably less useful clinically than the age norms. The scores are expressed as educational ages (E.A.); when these are divided by the C.A. an educational quotient, E.Q., is secured. From our previous discussion it is evident that educational achievement depends more upon M.A. than upon C.A.; hence a more useful measure is the accomplishment ratio, which is described thus:

$$\text{A.R.} = \frac{\text{E.A.}}{\text{M.A.}} = \frac{\text{E.Q.}}{\text{I.Q.}}$$

Certain tests of educational achievement are designed to give a rating of accomplishment in all the fundamental school subjects; these usually have separate sections for each subject. Thus the Stanford Achievement Test, which is the one most frequently used in psychological clinics, has sections for reading, arithmetic, science, history and literature, language usage, and spelling. The Otis Classification Test, which is also often employed, combines in its two sections tests for mental ability—the intermediate examination of the Otis Self-Administering Test—and for achievement, including questions designed to measure reading, spelling, grammar, arithmetic reasoning and fundamental operations, geography, history and civics, physiology and hygiene, literature, vocabularly, music, art, and general information. All the other general achievement tests similarly sample knowledge in several fields.

Standardized achievement tests are available for all the subjects taught in the elementary school, most of those taught in high school, and many college subjects. Even as early as 1933 Hildreth (*34*) listed more than 1500 such tests, and Buros in a series of publications, the last in 1953, has approximately doubled this number.

APTITUDE TESTS

There are a number of tests, having some points in common with both achievement and intelligence tests, designed to measure aptitude or special abilities in specific fields. Essentially the *modus operandi* is to present to the subject questions or tasks which are more or less necessary in the particular field for which the test is intended. The Seashore Measure of Musical Talent (*56*) presents, by means of phonograph records, various tone combinations designed to measure (1) pitch discrimination, (2) intensity, (3) time, (4) consonance, (5) tonal memory, and (6) rhythm. The Stanford Scientific Aptitude Test (*69*) presents a series of questions and problems to indicate the following abilities: (1) experimental bent, (2) clarity of definition, (3) suspended vs. snap judgment, (4) reasoning, (5) detection of inconsistencies, (6) detection of fallacies, (7) induction, deduction, and generalization, (8) caution and thoroughness, (9) evaluation in the selection and arrangement of experimental data, (10) accuracy of interpretation, and (11) accuracy of observation. Other tests in this category have similar sections for their special fields. Evidently performance depends upon achievement, although a certain degree of general ability or intelligence is also required.

On the assumption that patterns of interests are characteristic of different groups, certain instruments have been devised to reveal these patterns. Examples of such tests are the Strong (60) Vocational Interest Blank and the Kuder (37) Preference Record. Both aptitude tests and interest records are used extensively, especially in clinical problems relating to vocational and educational guidance. The number of aptitude tests for specific vocations is so great that it is impossible to list them all here, and unwise to attempt selection; therefore we must refer the reader to the bibliographical note at the end of this chapter for further information.

SOCIAL MEASUREMENTS

An important aspect of diagnostic examination concerns the subject's social environment and his adjustment in social relations. In discussing the child's history in the preceding chapter, attention was directed to the significance of information dealing with the environment in which he lives, the psychosocial pattern of his family, and the adequacy of his social adjustment. Although this type of information is always sought in diagnostic interviews, a number of measuring devices have been designed to standardize and quantify the data. The reader must be referred to the Buros volumes for descriptions of scales of this type, but a brief mention of the Vineland Social Maturity Scale is warranted because of its usefulness in child study.

The Vineland Social Maturity Scale

This scale, prepared by E. A. Doll (27) and published by the Training School, Vineland, New Jersey, consists of 117 socially significant performances arranged approximately in the order of their development with increasing age. A plus score is given for each performance which the individual does habitually, a minus for those he does not do, and ± for those he does only occasionally. Allowance is made in the total score for those which he does not do because of limitations imposed by his environment, but no allowance is made for those not done because of physical or mental disabilities.

A tentative scaling of the items is available, by which a social age may be secured.

> The Scale affords: (a) a standard schedule of normal development which can be used repeatedly for the measurement of growth or change; (b) a measure of individual differences and, consequently, of extreme deviation which may be

significant in such problems as mental deficiency, juvenile delinquency, child placement or adoption; (c) a qualitative index of variation in development in abnormal subjects such as the maladjusted, the unstable, the psychopathic, the epileptic; (d) a measure of deterioration in those conditions where social regression is a consequence of mental and physical disease; (e) a measure of improvement following special treatment, therapy, and training. It is also useful in distinguishing between mental retardation with social incompetence (feeble-mindedness) and mental retardation without incompetence, which is often confused with feeble-mindedness.

Since its publication this scale has found wide clinical use, as indicated by Doll's monographic summary (*28*) of the test and the uses to which it has been put.

Other Measures

Because the home is so important in its influence on the child, any effort to understand the child's behavior requires some insight into the interpersonal relations existing among the family members. Such information is most often secured by interview and observation, but measures of the parents' ability and personality may be indicated. Stogdill (*59*) has prepared a brief scale which gives an indication of parental attitudes toward child behavior and toward the kind of control exercised over the child. Champney (*25*) has devised an instrument for appraising certain aspects of parent-child relationships from observation in the home.

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Chapter

4

Mental Deficiency or Feeble-Mindedness

DEFINITION

LIKE the poor, the feeble-minded have been and always are with us. Yet even today there is no universally accepted concept of what this condition is. During the past fifty years many definitions have been proposed by workers in medicine, sociology, education, and psychology, each of which emphasizes that particular aspect of the total condition which is the special interest of the author. Nevertheless, these several types of definition have common elements which have been best integrated by Doll, who proposed (*34*) six essential criteria of mental deficiency, viz., social incompetence, mental subnormality, developmental retardation, existing at maturity, constitutional in origin, and essentially incurable. On the basis of these criteria Doll (*33*) has formulated the following definition: "Mental deficiency is a state of social incompetence obtaining at maturity, or likely to obtain at maturity, resulting from developmental arrest of intelligence because of constitutional (hereditary or acquired) origin; the condition is essentially incurable through treatment and unremediable through training except as treatment and training instill habits which superficially compensate for the limitations of the person so affected while under favorable circumstances and for more or less limited periods of time."

From the point of view of psychoclinical diagnosis, there must be evidence related to all the above-mentioned criteria before an individual is labeled and treated as mentally deficient. Evidence of social incompetence, mental immaturity, and developmental retardation is obtainable from examination and observation of the patient and from evaluation of his developmental history. The status at maturity is obtained in the same way for the chronologically adult subject, but must be predicted in the case of a child. The constitutional origin may be evident from the medical history or examination, or it may be inferred from the other criteria. Incurability, the sixth criterion, is not available to observation in children, but must be an inference cautiously made on the basis of all the available clinical data.

The social criteria are variable, but this is at once their weakness and their strength. The weakness lies in the suggestion of arbitrariness, which makes the condition of feeble-mindedness appear to depend on contingencies of the moment. From a scientific or technical point of view this is, perhaps, undesirable. For example, Penrose (*3*) who represents the medical point of view, argues that while a social definition may be useful to the sociologist it is unsatisfactory to the biologist. It is, however, the social criteria which are most useful in clinical work. It seems hardly justifiable to call a man feeble-minded because of low test performance or poor school attainment when he is successfully adjusting to his economic and social environment. On the other hand immaturity and developmental retardation which prohibit an individual from meeting the demands of an urban society justify a diagnosis of feeble-mindedness, even though in the simpler environment of an institution or in an isolated rural culture the individual might "get along" quite well. Diagnosis which carefully considers this social criterion recognizes that adequate social adjustment at the present time is no guarantee that it will continue, nor that inadequate adjustment in one situation precludes at least a minimum of success in another. With all of its indefiniteness and vacillation the criterion of social incompetence is the only one which has any meaning in the practical area of social problems. This has been recognized in legal definitions as reviewed by Porteus and Corbett (*80*), who propose a tentative definition for inclusion in statutes: "Feeble-minded persons are those who by reason of permanently retarded or arrested mental development existing from an early age are incapable of independent self-management and self-support."

Since social competence depends in appreciable degree on the learning of certain skills and knowledge, the educational limitation of the mentally deficient is an important subcriterion. As early as 1838 Esquirol (*39*) formulated a clear definition of idiocy (which was then the generic term for mental deficiency) that was pedagogical in character. He said, "Idiocy is not a disease but a condition in which the intellectual faculties are never manifested or have never been developed sufficiently to enable the idiot to acquire such an amount of knowledge as persons of his own age, and placed in similar circumstances with himself, are capable of receiving."

Binet and Simon (*14*) state that idiots cannot talk, imbeciles cannot read or write, and morons cannot deal with abstract concepts. While it is true that school retardation, even in a rather serious degree, may be due to factors other than mental defect, a retardation of greater than three years is at least strongly suggestive of feeble-mindedness. In addition to being excessively retarded, the feeble-minded child is usually found to be doing rather poor work in his grade, especially in abstract subjects such as arithmetic.

The demonstration of mental subnormality may be made from descriptions of behavior, but psychological methods of examination afford a more efficient means. When the individual's test performance agrees with observed behavior in placing him at a maturity level at least 50 percent of his age, or in test performance terms an I.Q. of 50, the evidence for mental deficiency is reasonably adequate. In the borderline region between deficiency and dull normality, test results in terms of M.A. and I.Q. are not so certain; furthermore, they may give a false sense of precision, leading to serious abuse of what otherwise is a very useful way of describing feeble-mindedness.

The commonly used I.Q. of 70 as the upper limit of feeble-mindedness was first set by Terman (*92*) in the 1916 revision of the Binet. Taken in relation to his claim that 16 years represents the upper limit of mental development, this would mean a mental age of 11.2 years. However, 16 years is too high an upper limit; probably 14 years is more justifiable. With an I.Q. of 70, this would mean that the upper limit of feeble-mindedness is 9 years and 11 months; however, to use even this value strictly in diagnosing feeble-mindedness is dangerous. A statement made by Pintner (*79*) twenty years ago still remains an excellent guide for the cautious clinician:

> If we apply these limits (8–6 as adopted in the British Mental Deficiency Report of 1929, and 9–11 calculated from an I.Q. of 70 with an average adult C.A. of 14) to the Army results, we note that an upper limit of M.A. 8–6 would cut off about 3.7 percent; an upper limit of M.A. 9–11 would include about 10 percent. Similarly, when applying these limits to a random sampling of 17,502

> school children, not including children in special classes, I find that 1.28 percent fall below I.Q. 60, and 5.72 percent below I.Q. 70. It is therefore probably wiser to consider the upper limit of feeble-mindedness as lying somewhere in the neighborhood of I.Q. 60 and M.A. 8–6.[1]

I.Q.'s between approximately 60 and the conventional 70 must be interpreted in the light of other clinical evidence.

Test score is merely a convenient method of indicating the individual's performance level at the time of examination. A series of test scores secured at intervals during his life would indicate failure to develop average performance. Inasmuch as such a series of scores is seldom available, other means must be used to demonstrate developmental retardation. Indications are available in the record of age of appearance of locomotor acts, speech behavior, feeding and dressing, play activities, and the like. The personal history of the feeble-minded child will show that all or most of the behavior segments which are looked upon as stages in behavior development appeared late. In a later section we shall discuss in greater detail the clinical investigation of these several criteria which it is our present purpose only to describe.

Degree of Deficiency

In addition to considering feeble-mindedness as a general condition, we may at this point distinguish four degrees which are commonly enumerated. The lowest grade of mental deficiency is *idiocy*. Idiots never have a mental development greater than two years; in children this is represented by an I.Q. of from 0 to around 15. They are unable to look after themselves adequately. The lowest grades usually cannot feed, dress, or keep themselves clean, or protect themselves from common physical dangers. The highest grades can be taught to care for themselves within narrow limits.

The next higher level is *imbecility*. Imbeciles range in M.A. from about three years to six or seven; such children have an I.Q. range from about 15 to 45 or 50. Imbeciles can rarely be taught to read or write and cannot profit from ordinary school work, but may be trained to do simple manual labor.

The highest degree of feeble-mindedness is called, in this country, *moronity*. Adult morons have mental ages from six or seven to eight or nine, and in children the I.Q. range is from 45 to 50 to about 60. Morons can learn reading, writing, and arithmetic in a very elementary fashion. They can be trained to do many unskilled and semiskilled tasks and can work successfully under supervision.

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[1] Reprinted from page 814 of *The Handbook of Child Psychology*, 2nd ed., C. Murchison, ed., by permission of the Clark University Press.

The fourth and highest class of mentally deficient persons may be called *borderline* or *subcultural normals*. These individuals have a mental age from eight or nine to eleven or twelve, and children have an I.Q. that falls approximately in the 60 to 70 range. Such persons may reach the fourth or fifth grade in school and may be trained in many semiskilled occupations, but usually require a good deal of supervision. The final diagnosis of feeble-mindedness in these cases must rest upon a careful appraisal of the evidence relating to all the criteria mentioned earlier.

CAUSES

From the above discussion it is evident that mental deficiency is determinable only in terms of behavior on a test, in school, in society, or elsewhere. So far as feeble-mindedness is a deficient form of behavior, any consideration of its etiology must take into account all the factors which may reduce the efficiency of behavior. Certain factors which affect behavior efficiency, e.g., blindness or deafness, may be excluded because they do not usually result in the generalized deficiency which characterizes the mentally defective. Environmental lacks or emotional blocking may be significant in pseudofeeble-mindedness, but they do not meet the criterion of constitutional origin which we accept as necessary for true feeble-mindedness. Recognized etiological factors may be genetic, prenatal conditions, and postnatal events.

There have been a number of etiological dichotomies for grouping cases of which primary and secondary, familial and nonfamilial, and endogenous and exogenous are the more commonly used. In general the first of each of these pairs of terms refers to genetic or hereditary factors, and the second to environmental circumstances, uterine, natal, or postnatal, which result in interference—usually pathological—with biological development.

According to Doll (*34*), the endogenous type includes the "hereditary transmission of psychobiological insufficiency," while the exogenous type includes "pathological alterations of normal development as well as some relatively rare hereditary types of pathological morphology represented by the clinical varieties of mental deficiency."

Heredity

Since Goddard's study of the Kallikak family (*45*) in 1913 and his insistence upon the importance of heredity in the etiology of amentia, heredity has been almost too tenaciously held to be the most important cause of mental deficiency. Early reports placed the percentage of inherited feeble-mindedness as high as 80 or 90; more recent studies, however, have been more conservative.

Larsen (*64*) classified 762 cases from 1000 studied, as hereditary feeble-mindedness. This included 115 cases of Mongols, microcephalics, and endocrine dystrophies which are congenital but probably not hereditary. About half of the remainder were classed as hereditary on the negative grounds of no other cause being found. Factors known to be of possible hereditary significance were present in probably not more than a third of the thousand cases. This reduced figure is of the order of those reported by others.

Doll (*31*), reporting a careful survey of the population at the Vineland Training School, divided the cases into 30 percent plausibly hereditary, 30 percent secondary, and 40 percent unknown or unclassified because the etiological factors were not clear. Penrose (*78*) reports similar findings. In a survey of 513 institutional inmates he found 29 percent classifiable as primary aments, i.e., hereditary; 9 percent secondary, and 62 percent unclassifiable in the dichotomy because the hereditary and acquired factors could not be separated. Similar figures have been determined by R. T. Louttit (*67*) from an analysis of original diagnostic statements made on 2074 inmates of the Fort Wayne State School. Here there were 33 percent classed as hereditary, 38 percent as secondary, and the remaining 29 percent could be placed in neither group.

The original evidence of heredity as a cause of feeble-mindedness came entirely from studies of the families of defective individuals. Dugdale (*37*) presented the first study of a degenerate family called the Jukes. He traced this family through seven generations starting about 1740, and in 1915 Estabrook (*40*) continued the history to that date. This family had an extremely disproportionate number of paupers, criminals, prostitutes, and other socially degenerate persons. Dugdale thought of these asocial forms of behavior as inherited, but said little about feeble-mindedness. Estabrook felt that mental deficiency was an outstanding characteristic of the family; and yet of the 2820 persons included in his study, only 131, or 4.5 percent, were sufficiently defective to require custodial care. When one realizes that psychological diagnostic methods were lacking at that date, and then compares this percentage with those reported in some surveys, it would appear that the emphasis on feeble-mindedness may have been misplaced.

Probably the best-known studies in the heredity of feeble-mindedness are those by Goddard. His first study is of the Kallikak family (*45*), which stemmed in two lines from the union of one Martin Kallikak, first with a barmaid, and later with a lawful wife. The first line shows a much higher proportion of social degenerates than the second. Goddard, of course, attributes this degeneracy to feeble-mindedness in the family line descending from the barmaid. It is somewhat surprising how uncritically this study has been accepted almost universally as proof that feeble-mindedness is inherited. We might like to know just how a field social worker in 1911 could really be sure that a barmaid in a tavern during the American Revolution was feeble-minded. While test performance is not all-important, yet it would be interesting to have data, at least for the living members of the clan, on the tests that were available in 1911. It also appears that no particular account was taken of the fact that these people were living in a poor, isolated community and therefore had opportunity of learning to behave only as those about them did. Perhaps a careful study of the original data upon which this book is based, if they are still in existence, might well repay the effort expended. Under the stimulus of this work, Goddard proceeded to study family histories wholesale; and in a second volume (*46*) he presented about 300 family histories of feeble-minded persons. He concludes that 54 percent of the histories show indubitable inheritance—in fact, as definite and simple inheritance as is exhibited by hair or eye color. Furthermore, 11 percent were classed as probably hereditary, and 12 percent as having neuropathic ancestry—a total of 77 percent resulting from heredity. Compare this figure with the 30 percent given by Doll (*31*), based on inmates in the same institution, and it hardly seems possible that both of them can be right.

Studies by Danielson and Davenport (*25*) and Estabrook and Davenport (*41*) merely reiterate the findings for the Jukes and Kallikaks. It must be mentioned that Davenport by 1921 changed from his apparent agreement with Goddard that feeble-mindedness was a Mendelian recessive trait to the position that it was a sociological condition caused by the absence of various sets of traits in individual cases.

When one considers these studies carefully it appears that they may not be so crucial as many would believe. None of them can answer the question whether the social condition of these people was as it was because they were feeble-minded or whether they were feeble-minded because of their social condition. As Darrow (*26*) points out regarding the often-made comparison between the Jukes and the Edwards families:

> The Jukeses in a barren, rocky, isolated community are contrasted in the literature of eugenics with a family in the fertile Connecticut River valley—a family in which a few members having fame were able to pass this heritage to others down the line. Why go out of the way to even infer that the germ-plasm had anything to do with either case? The generations back of Max Jukes and those back of Jonathan Edwards were infinitely greater in number than the generations that have so far followed. In any fairly homogeneous community one needs only to go a little way back to find the lines crossed and the germ-plasm mixed. Otherwise there couldn't possibly be enough ancestors to go around. These two historical sires are first discovered living less than 200 miles from each other. I, for one, am willing to contend that it is safe to bet that Max came from the East, and a not unreasonable guess that the ancestors of the Edwardses and Jukeses were mixed.

In spite of the widespread acceptance of the theory of the inheritance of feeble-mindedness, based upon such studies as we have mentioned, scientific caution demands the withholding of final judgment until all the possibilities of social inheritance are adequately controlled. We cannot accept sociological studies as evidence of biological inheritance.

This does not mean that biological inheritance is not a factor in the etiology of amentia: Intelligence or behavior efficiency is a function of the human biological organism. As Penrose (*3*) points out, it "probably represents the combined effects of a great number of genes and environmental influences." It may be added that the effect of genes or environment is not on intelligence as a behavioral entity, but on the biology of the organism which exhibits the behavior. In the work referred to, this same author has assembled the extensive evidence concerning the genetics of mental defect from which is evident the support for his statement that "taken all together, the mentally defective are physically inferior to the rest of the population." The inferiority, as Bucklew and Hafner (*16*) argue, is not in the nervous system alone but is a general organismic dysfunction. Such dysfunction sets limits to behavioral achievements, and it is this which indicates feeble-mindedness. In this indirect sense, heredity is of etiological significance in feeble-mindedness.

Congenital Causes

Another class of causative factors of primary amentia are the congenital; i.e., they are operative *in utero*. Although a number of such factors may be suggested, there is a paucity of data concerning them. Nutritional deficiencies, accidents, and infections during pregnancy have all been mentioned as possibilities. Thus the offspring of an untreated syphilitic mother almost inevitably exhibit signs of congenital syphilis. After carefully surveying the literature on this question, Davis (27) concludes that there is little evidence that congenitally syphilitic children will necessarily be feeble-minded. She calculated an incidence of 3.68 percent of congenital syphilis from data in 16 studies covering 177,216 hospitalized or institutionalized children who were presumably unselected on any direct basis of mental ability. On the basis of 23 studies including 19,712 feeble-minded children in hospitals and institutions, the calculated incidence was 7.3 percent. This difference in incidence, which is statistically significant, suggests a possible causal relation. Certainly in those cases in which both conditions are observed, the syphilis may well be of etiological importance.

TABLE 6. Effects of Pelvic X-Ray Irradiation of Pregnant Women on Their Children

Treatment	Mothers: Number	Children: Normal		Microcephalic		Otherwise Abnormal		Abortion	
		No.	%	No.	%	No.	%	No.	%
During pregnancy	53	17	32.1	14	26.4	13	24.5	9	17.0
Before pregnancy	265	188	70.9	1	0.38	9	3.4	67	25.3

There have been a number of reports (75) on the effects of the X-ray irradiation of mothers during pregnancy which agree that the children of such pregnancies have a high probability of being defective. Data published by Murphy (74) on the offspring of mothers who had been subjected to therapeutic pelvic irradiation indicate the high incidence of microcephaly and other abnormalities; these data are summarized in Table 6.

Another *in utero* influence that is apparently significant in the etiological picture of an appreciable number of feeble-minded subjects is mother-child incompatibility in the Rh blood factor. Yannet and Leiberman (*102*) first pointed out that the combination of Rh− mothers and Rh+ children occurs in a significantly greater degree than would be theoretically expected in undifferentiated feeble-minded subjects. These findings have been confirmed by the same investigators in a series of 119 cases (*103*), and independently by Snyder (*88*) and his co-workers. The mechanism apparently involves the placental passing of antigens from the mother to the fetus.

Mongolism is apparently the result of abnormal physiological conditions in the mother, and true cretinism is associable with hypothyroidism in the mother. French, et al. (*44*) in describing a method of classifying subjects include as of possible etiologic significance the following prenatal and natal conditions: in mother during pregnancy: infectious disease, toxins and drugs, severe endocrine disorders, serious nutritional deficiencies; fetal: X-irradiation, trauma from maternal injury, trauma from mechanical abortion; natal: prolonged labor, intracranial hemorrhage, asphyxia, abnormal delivery, prematurity, high or medium forceps delivery. This list does not imply that the conditions listed necessarily result in mental defect, but that they may have a significance in a specific case.

Postnatal Causes

Secondary or postnatally acquired amentia may be grouped into at least three etiological classes: traumatic, infectious, and endocrinopathic. The most important of the traumatic group is trauma associated with labor and delivery, i.e., birth injuries. Doll, Phelps, and Melcher (*36*) have reëmphasized the importance of this etiological factor. Head trauma during infancy and childhood is of doubtful etiological significance unless there is loss of consciousness or hemorrhage. In the infectious group, meningitis, encephalitis, and polioencephalitis may be significant. There are also reasons to believe that diseases such as whooping cough, diphtheria, scarlet fever, mumps, pneumonia, and influenza occurring in infancy or at early preschool ages may have general behavior sequels. Endocrinopathies of particular significance in mental deficiency include hypothyroidism (cretinism) and pituitary dysfunctions.

Pseudofeeble-Mindedness

In the discussion of etiology to this point our concern has been with individuals whose evidence of mental defect has been observed over a long period of time. There have been individuals, however, diagnosed as feeble-minded who, following changed circumstances, special therapeutic attention, or even spontaneously, have improved so that they no longer meet psychometric, educational, or social criteria of mental deficiency. Such cases have been called pseudofeeble-minded, perhaps primarily because they do not meet the criterion of essential incurability.

Cassell (*19*) believes that mistakes in diagnosis, when too much reliance has been placed on psychometric examination, is the commonest reason for the pseudo condition. This can hardly be considered a "cause" of a condition, but it certainly may be a reason for certain types of management which might not be for the subjects' greatest good. Schmidt's (*84*) spectacular results in increasing the average I.Q. of a group of 254 school children from 52.1 to 71.6 after a special program for three years and to 89.3 five years after the end of the special program would appear to be a result of very questionable initial diagnoses. As Sarason (*4*) points out, the criteria used in these diagnoses were limited to intellectual capacity and social competence based on the Binet and the Vineland Social Maturity Scale. No data relating to other criteria are reported. This study, I believe, was actually reporting on a group of children erroneously diagnosed as feeble-minded although they were certainly below the range of normal ability. For convenience we may class such subjects as pseudofeeble-minded.

A second type of situation in which the subjects are perhaps not true mental defectives is found where for unknown reasons mental development is delayed but accelerates spontaneously. Heath (*54*) reports the case of Charles, whose Binet I.Q. at C.A. 3.7 was 41, who at 11.1 years had an I.Q. of 91, and at age 19 was released from the institution with an I.Q. of 106. Guertin (*47*) reported a comparison of two groups of 25 institution cases: the experimental groups were selected because they had shown some increase in intelligence test scores on retest; the control group was matched for such factors as sex, C.A., initial I.Q., and time in the institution. Studied over a long period the experimental group showed test score improvement to 27.5 years C.A., while in the control group the mental growth showed the usual developmental curve reaching a maximum at around 20 years. At age 27.5 the experimental group had an average M.A. of 11.5 while the control group was only 8.25 years. The delay in mental growth for the experimental group, as well as in such cases as Charles' mentioned above, are unexplained. Guertin (*48*) attempted to find differentials between the two groups which might be diagnostically significant, but was unsuccessful.

Emotional disturbance at a young age may be sufficiently serious to interfere with normal development and result in a behavioral condition reasonably diagnosed as feeble-mindedness. Axline (*9*) reports cases of five children with I.Q.'s from 65 to 74 who were rejected by parents and exhibited behavior problems as well as stupidity. Following ten to eighteen play therapy interviews these children had increases of from 15 to 20 I.Q. points. Other authors (*4*, *21*, *52*, *94*) have reported case studies of psychotherapy with mentally defective children in which there was improvement in behavior and even some improvement in test scores.

The preceding three paragraphs have discussed conditions in which the subject is diagnosed as feeble-minded but who later shows a behavior improvement not ordinarily to be expected. To these might be added the possibility of severe environmental limitations producing similar inadequate behavior. Except in the case of delayed mental development the other categories of pseudofeeble-mindedness appear to be the result of diagnoses based upon inadequate data or limited clinical insight. Because this problem has been increasingly recognized in recent years it is worth mentioning here. The recognition of occasional cases of this sort does not, however, hold out much promise that the great majority of carefully diagnosed mentally defectives can be expected to show greatly improved behavior abilities spontaneously or with special kinds of therapeutic attention.

DIAGNOSIS

Diagnosis of feeble-mindedness has real value only in relation to its function in determining a basis for management. Potter (*81*) says: "The generally used terminology of moron, imbecile and idiot, as subgroups of mental deficiency, is entirely inadequate for clinical purposes and represents merely a psychometrically determined differentiation based on the relative inadequacy of the functioning of intelligence." He then proceeds to argue that a really serviceable diagnostic classification of the feeble-minded should be based on organopathological grounds. While there is no doubt that such medical diagnoses are of the greatest importance, it is absurd to say that classification by degree of defect is inadequate. The problem of handling the feeble-minded is a social one; it must aim to train or care for these individuals so that at least they will not be harmful elements in society, and at best they may make some contribution. Within limits—perhaps narrow ones, it is true—it is just these "merely psychometrically determined differentiations" that afford one of the most economical methods of determining how much training may be possible. Furthermore, the degrees of idiot, imbecile, and moron are not wholly defined by psychometric results, nor does any capable clinical psychologist today attempt so to define them.

Essentially our diagnostic problem is this: Given a child who exhibits difficulty in acquiring the forms of behavior thought desirable or necessary for social adjustment, we are, first, to find whether or not this inability is due to deficiencies which experience has taught us will make it impossible for him ever to acquire them to a satisfactory degree, and second, to determine how severe those deficiencies are.

It is quite true that test results or mental ages alone will not answer either of these questions. Fernald (*43*) says:

> The writer once assembled in a room 252 individuals with a mental age of 8 years. The individuals in this group varied in physical age from twelve to fifty years. Some of them had learned to read, while others had not been able to do so. Some were capable of elementary computations, while others found the simplest concept of numbers almost beyond their capacity. We had been able to develop some of them to become fairly expert mechanics, but others were able to do only the simplest sort of manual labor. Some were conscientious and relatively trustworthy; others were most untruthful, dishonest and unmoral. In some, sex proclivities seemed to be the dominant interest, while in others the sex interest seemed to be entirely normal. This variability shows that a measurable intellectual level is not the only factor in the study of the feeble-minded and in the working out of the type of care and training that they need.

Anyone who has worked with the feeble-minded recognizes the accuracy of these observations. Still it is not at all obvious that classification of cases on the basis of organic pathology will further the desired ends to a greater degree, or even as far as the determination of intelligence level.

The problem of diagnosis divides itself into two parts: (1) in relation to the lower grades of mental deficiency, and (2) in relation to the moron and borderline case.

The first of these offers little difficulty. By definition, the idiot is incapable of anything but the most elementary activities largely concerned with his own well-being. Low-grade idiots are even incapable of this; they cannot feed themselves or keep themselves clean, they do not avoid ordinary dangers. Their limitations are roughly comparable to those of the infant of less than two years. Therefore a criterion in terms of a mental age of less than two years in adults, or an I.Q. of less than 15 in children, would appear to be legitimate. In ordinary circumstances the history of the child's development and present behavior is sufficient to establish a diagnosis. Psychometrics can only add a tentative quantification and thence a basis for prognosis.

The difference between high-grade idiots and low-grade imbeciles is indistinguishable. The boundary usually accepted, i.e., a mental age of about two years, is only an arbitrary, convenient value. Therefore problems of diagnosis are similar to those for idiots. Developmental history and present behavior may be sufficient to establish a diagnosis, with psychometric results adding something to prognosis.

Medical diagnosis is important in these lower grades of defects, especially for determining possible etiology. But such diagnosis does not, *per se*, enable one to establish the fact or degree of mental deficiency. On the other hand, the determination of an M.A. or I.Q. does not solve the problem of management. Such figures may indicate the limits of achievement in the majority of cases; but final disposal must rest upon further data, as discussed subsequently in relation to the moron and borderline groups.

Borderline diagnosis requires careful interpretation of data from psychological, social, educational, medical, and other examinations. That it is not a simple matter is attested to by the number of writers who have discussed the problems involved. Even this widespread attention to the problem has not resulted in a wholly satisfactory diagnostic method. Doll (*32*) advises that the diagnostic dilemma resulting from the inadequacy of test results suggests that "serious work must be done toward improving the criteria of mental deficiency or at least of validating more precisely the limits within which the criteria are valid." We shall not undertake to offer the final method of diagnosis but shall be content to call attention to what appear to be significant methods.

One further preliminary word must be said. Regardless of how adequate a plan is presented, how precise are the differential factors, how detailed are the directions, diagnosis cannot be read about in a book and then applied to clinical cases. Differential diagnosis of feeblemindedness is an art, and as an art it is improved through experience. The physician learns diagnosis not from the textbook but in the clinic. Likewise the clinical psychologist must see the textbook account in operation with living patients, and he must take an active part in the examinations. Clinical experience is the *sine qua non* of all diagnostic ability.

Fernald (*43*) proposed ten "Fields of Inquiry" as a working basis for individual case study in borderline diagnosis. This plan is the prototype of all subsequent proposals. The ten fields to be covered are shown in Table 7. The data for each of these fields were evaluated from case histories; if a case showed evidence of defect, it was marked minus; if there was no evidence of defect it was marked plus. Fernald's paper presents several charts showing the frequency with which the various fields were marked minus for several groups of patients. The figures in Table 7 are estimated from his Chart No. 1, which is based on 614 feeble-minded subjects and 61 diagnosed as "not feeble-minded." Comparison of these percentages suggests something of the relative importance of the various fields of inquiry. Presumably the fields that are negative with much greater frequency in the feeble-minded group are of more diagnostic significance than those which rank almost the same in each group.

TABLE 7. Fernald's Ten "Fields of Inquiry"

	Feeble-Minded A	Not Feeble-Minded B	A-B C	$\frac{A}{B}$ D
1. Physical	80	33	47	2.42
2. Family history	73	56	17	1.30
3. Personal developmental history	90	53	37	1.70
4. School progress	95	33	62	2.88
5. Examination school work	95	16	79	5.94
6. Practical knowledge and general information	86	6	80	14.33
7. Social history and relations	89	39	50	2.28
8. Economic efficiency	85	30	55	2.83
9. Moral reactions	72	70	2	1.03
10. Mental examination	95	13	82	7.30

The following summary of diagnostic points includes all the ten fields suggested by Fernald, but we have made some rearrangements and condensations.

Psychometric Examination

It is unfortunate that test scores have become so unquestioningly accepted, especially among nonpsychologists, as indicators of feeble-mindedness. As was said earlier, this is in large measure the effect of the belief in Terman's statement that an I.Q. of 70 represents the boundary between deficiency and dull normal. The careful clinical psychologist must accept Carl's dictum (*18*) that "psychometric data, alone, seldom if ever serve as adequate vehicles of diagnosis or classification, even in frank feeble-mindedness." The psychometric tools employed must afford an opportunity to evaluate the subject's performance in several areas. At least one verbal (Binet) and one nonverbal performance test should be given, and these should be supplemented by a variety of tests whenever possible. A measure of social competence and development (see Social History, below) should be included. Consistently low scores on several types of tests—i.e., with I.Q.'s or performance ratios consistently below about 60—are strong diagnostic evidence of feeble-mindedness. Consistent performances represented by ratios from 60 to 75 or 80 may indicate feeble-mindedness, but strong support is required to establish the diagnosis. Inconsistent performances on tests of different types should be interpreted only in the light of other data.

The qualitative nature of the response to test situations is often as revealing of deficient ability as the quantitative score. With all types of tests, failure to understand directions, inability to conceive what is to be done, trial-and-error attacks on manipulative tasks with failure to gain insight into even simple principles, and stupid errors and their repetition are all characteristic of the test performance of the feeble-minded. The following case reproduces the exact order of presentation of the 1916 Stanford-Binet items and illustrates the typical deficient performance on this type of test.

Case No. 1 (I. U. Clinic B-1140). C. B., female, C.A. 12-2. In ungraded group in school in which she is doing primary work. Binet M.A. 6-8, I.Q. 55. The exact order of presentation of the Binet items and the girl's responses were as follows:

IX, 1 (Date)—"Wednesday, June, 1934." (Correct: Wednesday, November 14, 1934.)

VIII, 2 (Counting backwards)—20, 19, 18, 17, 16, 15, 16, 14, 15, 16, 17, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1.

IX, 3 (Making change)—(a) 4 from 10, "five cents."
(b) 4 from 25, "twenty-five cents."

VIII, 3 (Comprehension)—(a) "Pay back."
(b) "Run."

IX, 5 (Making sentences)—(a) (Boy, river, ball) "I have a dog." Directions were repeated. "I have a ball." Directions again repeated. No response. Examiner demonstrates.
(b) (Work, money, men) "The men do work."

VIII, 5 (Definitions)—(a) Balloon. "Play with it."
(b) Tiger. "A great big."
(c) Football. "Play with it."

VII, 2 (Pictures)—(a) "House, little girl crying, woman sitting in chair, cat asleep."
(b) "Boat in the water, men driving it, man helping push, man and woman."

VII, 5 (Differences)—(a) "Fly is little and butterfly is big."
(b) "Stone is wood and egg is glass."
(c) "Glass is glass and wood is wood."

IX, Alt. 1 (Months)—"June, July, August, September, November, December, August, November, December."

IX, 6 (Rhymes)—(a) (day). "Today, may, may, no I got that." (Time limit up.)
(b) (mill). "Mill, nil." (Time limit up.)

(Digits forward)—(641) "641"
(4739) "4739"
(31759) "3759"
(42835) "4285"
(98176) "8916"

VIII, 4 (Similarities)—(a) (Wood and coal). "Burn the same."
(b) (Apple and peach). "Apple tastes different and peach tastes different."
(c) (Iron and silver). "Iron is iron and silver is silver."

VI, 6 (Repeat sentences)—(a) "We are having a good time. They are a mouse in the trap."
(b) "Walter did have a fine time on vacation time. He went fishing everytime."

(Digits backwards)—(283) "382"
(6528) "6528"
(4937) "4937"
(8629) "629"

VI, 4 (Comprehension)—(a) "Run, bring umbrella."
(b) "Run out, call fireman."

VI, 5 (Knowing coins)—"Nickel, penny, quarter, dime."

The other three tests of year VI—right and left, omissions, and counting—she successfully passed.

(Vocabulary)—(1. gown). "You wear."
(2. tap). "Wear on your head." Examiner gave word again. "You dance in."
(3. scorch). "Scorch your clothes."
(4. puddle). "Water."
(5. envelope). "Put letters in."
(6. rule). "Not talk."
(7. health). "You eat thing and make you health."
(8. eyelash). Pointed to eyebrow.
Did not know the next five words.

A word may be added here on the use of projective techniques in diagnosing mental deficiency. Several investigators have reported responses of feeble-minded subjects on the Rorschach and Thematic Apperception Tests. Beck (*11*) many years ago, and Sloan (*86*) and Jolles (*60*) more recently have claimed certain Rorschach signs as being of diagnostic significance. However, the basic question of the validity of this test, and the small number of cases used in these investigations as well as others, suggest caution in too great diagnostic reliance on the Rorschach. Sarason (*4*) feels that the value of the Rorschach Test as a diagnostic tool must be questioned, but in his summary of work with this test and with the TAT he indicates that they may be very useful in investigating personality characteristics of defectives. This is a desirable interest because such characteristics of the feeble-minded may be as significant in their adjustment as they are for normal persons.

Educational Examination

The division made by Fernald between school progress and educational achievement would seem to be a good one. School retardation of three years or more is very suggestive of deficiency amounting to feeble-mindedness. There is no necessary close relationship between school advance and educational achievement as measured on standardized tests. Dull children are often promoted on a basis of physical size rather than classroom achievement. Accomplishment ratios of 100 or less in children having I.Q.'s below 60 to 70 strengthen the diagnosis of feeble-mindedness. If the accomplishment ratio is over 100, it suggests that the child's intelligence test performance is spuriously low.

As poor reading ability brings both intelligence test and achievement test performance down, the possibility of its influence must be eliminated. Especially in clinical work with school children does one find children referred as defective who, upon examination, are found to be average but to have a special reading disability. Teachers' reports of children's academic ability or intelligence must be carefully evaluated. However, the teacher's judgment as to comparative ability in the mechanics of reading, arithmetic, or spelling, and the more abstract aspects of these subjects, may be important. Defectives may do fairly well in the former, but they seldom, if ever, show aptitude in the latter.

Social History

In the social history are included Fernald's "Fields of Inquiry" Nos. 6, 7, 8, and 9. Environmental circumstances are probably of little diagnostic value. Although feeble-mindedness, especially of the higher grades, is frequently found in the lower socioeconomic classes and those living under less desirable environmental conditions, the converse does not follow, that people living under such conditions are usually feeble-minded. Economic or vocational adjustments may be important. Frequent changes from one unskilled, ill-paid job to another suggest inability to make an economic adjustment. Reasons for leaving jobs as reported by the subject or the employers may be suggestive. Long tenure on an unskilled, monotonous job may also indicate a lack of ability to profit by experience and thus advance.

In children perhaps the most easily observed social behavior is in connection with play interests and companions. Consistent enjoyment and contentment with play material decidedly below the child's chronological age, and preferred association with children much younger are valuable corroborative evidence of low ability. General knowledge of current affairs of local or more extensive import appears from Fernald's figures to be extremely significant. Such knowledge may be sampled by informal questions appropriate to the time and place. The examiner must exercise care in keeping the questions fairly uniform for different patients.

Overt delinquencies or other forms of problem behavior, as such, are probably not very indicative. As discussed in later chapters, there appears to be no necessary relation between mental deficiency and juvenile delinquency, speech defects, or conduct or personality problems. The existence of such problems cannot be taken to indicate feeble-mindedness. However, within the total picture of an individual case, problem behavior may be of diagnostic significance. Thus enuresis or delayed speech may indicate that the child has not learned conventional behavior because of lack of ability. Crimes or misdemeanors committed at the instigation of another person may be evidence of suggestibility, which as a characteristic of feeble-mindedness may give added weight to a diagnosis. Thus stealing and sexual immorality among the feeble-minded frequently occur at the suggestion of other persons who are usually not feeble-minded. As is brought out in Case No. 8, the feeble-minded individual's delinquent behavior may itself show evidence of stupidity and childishness.

The Vineland Social Maturity Scale, described in Chapter 3, is very valuable in indicating the social competence of the feeble-minded. Doll (*35*) has reviewed a large number of studies which indicate the value of this instrument in diagnosing mental deficiency. The use of a numerical "social age" to indicate performance has a value at least equal to that of similar scores on intelligence tests. Furthermore, the systematic exploration of social behavior demanded by the scale is significant in forming a clinical picture of the subject. Inasmuch as it is necessary for the parents to contribute information concerning the child, this scale also helps in making them understand the reason for reaching a conclusion of mental deficiency. Since the scale items follow a developmental sequence, they can also be used to secure a history of the child's development prior to the date of examination.

Developmental History

The ontogenetic history of feeble-minded children usually shows retardation in several directions. There may be delayed dentition or other indications of slow physiological development. Locomotion, talking, bowel and bladder control, habits of feeding and dressing, and such behavior are frequently established at significantly later ages than in normal children. Information on these items may be secured by questioning parents, and is facilitated by proper use of the Vineland Social Maturity Scale. This information is important because it indicates that the retardation was present at an early age and hence is not a recent occurrence.

Family History

Facts concerning parents and other relatives can scarcely be used to establish a diagnosis of mental deficiency, but they may be of great importance in understanding and dealing with the problem. As the data of Table 7 indicate, items of family history showed a minimal difference between the feeble-minded and nonfeeble-minded groups studied by Fernald. However, evidence of mental defect in parents, grandparents, or other relatives are useful in attempting to clarify defective subjects into exogenous and endogenous groups. Further, planning for the care or training of mental defectives will be definitely influenced by the capabilities of the parents. Information to be secured includes such facts as mental ability of parents and other relatives, occupational and educational level of parents, existence of chronic illness and pathology, and any others which will provide insight into the family and environment in which the child has grown up.

Physical Examination

The medical examination deals with anatomical abnormalities and physiological, endocrinological, and neurological dysfunction and pathology. Although such data cannot be used to establish the fact of feeble-mindedness for reasons earlier discussed, they may be corroborative, and they may also indicate etiology. Since these factors should be investigated by the medical profession, we shall not consider them here. Anthropometric studies such as Doll's (*29*) finding that feeble-minded individuals usually show a superiority in the physical measures of standing height, sitting height, and weight over the psychophysical measures of right grip, left grip, and vital capacity, are of interest but the evidence for their value in diagnosis is very limited.

Some of the difficulties of diagnosis are illustrated in the following case, about which Dr. Babcock says: "She is selected as a case of a mentally inferior type of individual whose social background has also been extremely unsatisfactory. Without mental examination the fact of her mental deficiency would not have been apparent. She would probably have been committed to the Industrial School until twenty years of age and then have been turned adrift in the community."

Case No. 2 (*10*). When Philomena was about 8 years old, her father, a Filipino plantation laborer, killed his wife's lover, and was sent to the Oahu, Hawaii, prison. The child's mother promptly deserted her and Philomena was left to get on as best as she could. She lived around the plantation with the Filipino men, the property of various ones in turn, doing their simple housework, and receiving none of the usual privileges of childhood.

In November (1926), alarmed by their belief that Philomena, then 12 years old, was pregnant, the Filipinos decided that the responsibility might be fixed upon them, so they brought the girl to Honolulu to her father, who was still in jail. The situation was naturally too much for the father, but a Chinese storekeeper who lived near the jail took the child to the Salvation Army Girls' Home, where she remained for two months.

Later developments showed that the former fears were ungrounded; but then, since some arrangements had to be made for the child's future, she was turned over to the Child Placement Bureau. The problem presented was whether or not, if she were given a good home and regular schooling, Philomena could become capable of self-management and self-support, and put these very sordid early experiences behind her. Before any steps were taken toward such home placement she was brought to the Clinic for a mental examination.

The Binet and Porteus Maze tests both placed her at a 6-year mental level, with an I.Q. of 48. In the Binet tests she could not differentiate right and left, could not detect the missing features, repeat 5 digits in order or 3 digits backwards. In spite of the fact that she presumably had been housekeeping for various men for at least 4 years, she did not recognize all of the coins, could not make change or even count backwards from 20 to 1. If she had 10 cents, and spent 4 cents for candy, she believed that she would have 5 cents left. She expected 10 cents change when she bought 12 cents' worth of candy and gave the man 15 cents. She could write her last name, a word of three letters, but "Philomena" was too difficult for her.

In the Porteus Maze test she was very willing to coöperate but failed to understand the instructions for the 5-year test. She did pass the VI- and VII-year tests but the higher ones were too difficult for her, so that her Porteus Maze test age also was 6 years.

The cards of circumstance appear to have been stacked against Philomena. She had been abused from early childhood until she neither knew nor expected any different treatment. She was so dull that even long-continued training could not be adequate insurance against her going back to the same sort of life she had been living if once she were free to try to take care of herself. She was a girl for whom permanent supervision and care were absolutely necessary; she did not have sufficient intelligence to warrant even the slightest hope for her successful adjustment. For this reason she was committed to Waimano Home for the Feeble-minded where she will undoubtedly learn to be a very useful member of that special community and will be spared the miserable existence she was fairly launched upon.

SPECIAL TYPES

A number of pathological conditions, some genetically determined and others not, are found always or frequently associated with feeble-mindedness. Penrose (*3*) discusses some thirty of these but in most cases they are extremely rare and are therefore seldom seen in psychological clinics or schools. Such cases constitute only a small percentage of all feeble-minded. However, there are several of these clinical types which are of sufficiently frequent occurrence to warrant brief discussion.

Mongolism

This interesting, but baffling, condition was named and first described by Langdon-Down (*63*), although it was undoubtedly known many years earlier. The condition was given this name because the people afflicted with it supposedly resembled Orientals, mainly because of the almond-shaped eyes. Langdon-Down attempted a rather elaborate ethnic classification of idiots which, through lack of evidence, has lost whatever importance it might have had. The attention paid to Mongolism appears to be out of proportion to the frequency of occurrence. Penrose (*78*) has shown from his own figures and those of Van der Scheer (*101*) that the crude incidence in the total population is of the order of 1 in 10,000. After correction for the high mortality rate and other factors, the number of cases per live births is probably about 1 in 1000, which is approximately the frequency reported by Øster (*77*) from a review of reports based on nearly 150,000 births in six different hospitals.

Elaborate descriptions of this condition may be found in Brousseau and Brainerd's (*15*) early monograph and in Benda's (*13*) more recent one. Kuenzel (*62*) has succinctly described the physical appearance of the Mongolian:

> As a *differential* condition the typical Mongolian is best described as having almond-shaped eyes, set in shallow and widely separated eye-sockets, with epicanthic folds and puffy eyelids. His bright red tongue is unusually long, thick and broad, pointed at the end when protruded, with many deep transverse fissures, and usually protrudes from the mouth. His lips are thick and transversely fissured, the corners of the mouth are drooped and the lower jaw is thrust forward. He has a depressed nasal bridge, flattened occiput, small ears,

hypotonic muscles, hyperflexible points, and when asked to be seated he sits tailor fashion. The hands of the Mongolian are dry and chapped, his voice is coarse, and his gait is described as shambling.

This condensed summary does not do violence to any of the other descriptions and it is adequate in the present place. The condition is so similar in all cases that, as Penrose says, "to see and examine one is to obtain a very good idea of the characteristics of the type."

TABLE 8. Diagnostic Signs of Mongolism

Trait Name	Mongols A	Non-Mongols B	A/B
Number of Cases	50	350	
	Percent	Percent	
I.Q. between 15 and 29	70	25.8	2.7
Cephalic index 0.83+	44	17.4	2.5
Epicanthic fold	52	3.4	15.3
Fissured tongue	74	7.4	10.0
Conjunctivitis	30	1.4	21.4
Transverse palmar line	44	3.8	11.6
Only one crease on minimal digit	18	0.2	90.0
Number of Traits			
0	2	53.7	
1	4	35.4	
2	20	9.1	
3	30	1.4	
4	28	0.3	
5	8	0.0	
6	8	0.0	
7	0	0.0	
0–2	26	98.5	
3–7	74	1.5	

Penrose (78) lists significant signs as shown in Table 8. In the upper half are listed seven characteristics, with the percentage frequency of occurrence in a group of 50 Mongolians and 350 non-Mongolian but otherwise unselected institution cases. These data show that an I.Q. between 15 and 29 (imbecile) and a cephalic index of 0.83 or greater are about three times as frequent in Mongolians as in non-Mongolian feeble-minded. The other signs are considerably more frequent. The lower half of the table is read as follows: 2 percent of the Mongolians and 53.7 percent of the non-Mongolians had none of the seven characteristics, while 8 percent of the former and none of the latter had five of them. The last two lines show that although 98.5 percent of the non-Mongolian group exhibited not more than two of the traits, this was true of only 26 percent of the Mongolians. Combinations of three to seven traits occurred in 74 percent of the Mongolians but in only 1.5 percent of the non-Mongolians. Thus, a complex of several traits is nearly 50 times as frequent among Mongolians.

Penrose's choice of an I.Q. between 15 and 29 as an important criterion is supported by other findings relative to the mental ability of these persons. Brousseau and Brainerd (*15*), in classifying 206 Mongols, found 38 percent idiots, 61 percent imbeciles, and 1 percent morons. Malzberg (*69*) found among 880 Mongols in New York State institutions, 24 percent rated as idiots, 72 percent imbeciles, and 4 percent morons.

The cause of this condition is essentially unknown. Glandular dysfunction, exhaustion of fertility of the mother, heredity, Oriental ancestors, frequent pregnancies, and other factors have all been suggested as significant. Because careful examination shows about 1 in 50 sibships with more than one member affected, because parents who are themselves not Mongolian sometimes show some of the signs, and because the condition does occur in twins, it is possible that a genetic factor may be involved.

The two most promising theories ascribe the condition to glandular dysfunction, or to exhaustion of fertility in the mother. The first theory is upheld by Brousseau and Brainerd (*15*) in their monograph, and Mateer's reports (*70*) appear to contribute much to this view. Mateer found that the administration of pituitary extract to certain selected cases, together with specialized training, resulted in definite improvement in test performance. More recently Benda (*13*), from a study of over 300 cases, advances the hypothesis that the condition is due to hypopituitarism resulting from an inadequate hormonal environment in mothers of advanced age.

Exhaustion of fertility accompanying advanced age in the mother has strong support as a cause of Mongolism. Van der Scheer (*101*) showed that the mother's average age at the birth of Mongolian children was significantly higher than of mothers in general. Similarly, Penrose (*3*) found that the average age of mothers at the birth of 154 Mongolians was 37.2 years, while the average age of the same mothers at the birth of non-Mongolian siblings was 31.2 years. This difference of

6.0 years has a standard error of only 0.6 and so is of undoubted significance. Penrose also showed that the age of the father and the order of birth in the family are of little or no importance.

Cretinism

The most frequent specific endocrinopathy associated with mental deficiency is hypothyroidism. Children with such a condition, or adults who have exhibited the condition from early childhood, are called cretins. About 3 to 5 percent of institution inmates show some hypothyroidism.

These children are characterized by an evident physical dwarfing. The body is thick-set, legs short; extremities—feet and hands—are short and stubby; they are often cold and may be cyanotic. The skin is dry and thickened and gives the appearance of being too large for the individual's body. There is little perspiration. Subcutaneous fat is abundant. The hair is scant, dry, and brittle. The tongue and lips are thickened; the teeth, which appear late, are peg-shaped and chalky, and exhibit early decay. The abdomen is prominent, and umbilical hernia is common. They exhibit a low basal metabolism and subnormal temperature. Sex development is retarded and they seldom mature sexually. The course of the abnormal condition is slow. Many extreme cases die at an early age; milder cases may live to be adults. Early deaths are usually immediately due to complicating factors rather than to the hypothyroidism itself. The mental ability may range as high as dull normal. There appears to be a fairly close correspondence between the degree of physical and mental defect.

Hypothyroidism is definitely known to be the cause of cretinism. However, it may be possible that hereditary factors may predispose certain individuals. Emerson (*38*) insists that a distinction must be made between true cretinism and infantile myxedema. The former occurs only in so-called goiterous regions and results from a thyroid deficiency in both the pregnant mother and the child. Goiterous regions are those areas of the world, such as the Swiss Alps, and the Great Lakes region in America, where there is apparently a deficiency of iodine intake, this element being an important constituent of thyroxin, the chemical principle of the thyroid hormone. Infantile myxedema or sporadic cretinism occurs in children of parents with normal thyroid function. The condition is due to a pathological condition of the child's thyroid. Therefore *in utero*, at birth, and while nursing from the mother's breast, these children may show no untoward symptoms. But when they can no longer depend upon thyroxin from the mother, typical symptoms appear.

As earlier mentioned, these patients are sometimes confused with Mongolians, but the syndromes are quite distinct. One important differential is the cephalic index, which is usually high in Mongolians but normal or low in cretins. In doubtful cases, the establishment of a definite diagnosis is a purely medical problem.

Hydrocephalus

The most evident sign of hydrocephalus is the enlarged cranium, the circumference of which is not uncommonly 55 to 70 centimeters. The head may be of normal size at birth and a few days to months later exhibit a rapid growth in all directions. The enlargement is limited to the cranium; hence the parietal or frontal regions may be extremely prominent, the relatively nonchanging size of the face making it appear small and triangular in shape. At even advanced ages, sutures between the skull bones may be open and the fontanelles large and sometimes bulging.

Hydrocephalus is due to an accumulation of cerebrospinal fluid because of congenital or postnatal pathological conditions leading to (1) excessive formation of the fluid, (2) obstruction in the path of circulation, or (3) insufficient absorption. There is little clinical evidence that the first of these is a very important cause of hydrocephalus. The second is the most common cause of internal hydrocephalus, and the third, of the external form. Of these two last types, probably internal hydrocephalus is the one most frequently associated with mental deficiency.

The mental ability of these patients apparently has some relation to the degree of hydrocephalus present. It may range from that of an idiot to normal. However, the external appearance is not always a good indication of the degree of defect. A boy of 11 years and 3 months, examined in the Indiana University Psychological Clinic, had a head circumference of 78 centimeters which the mother said had not changed in size since the boy was five years old. His Binet performance gave him an M.A. of 8 years 10 months and an I.Q. of 78.

Medical diagnosis to determine the type and degree of hydrocephalus is essentially neurological and does not concern us here. Treatment for the pathological condition has been attempted by surgical interference directed toward reëstablishing ventricular circulation. This has been of doubtful success. The prognosis is unfavorable, with some very mild cases showing recovery, some cases showing no change after a certain point, and severe cases dying in infancy.

Microcephalus and Macrocephalus

These conditions have in common a congenital malformation of the skull and mental deficiency. Microcephalus is sometimes used to characterize any small-headed person, but technically should be restricted to a particular pathological condition. Chief among the signs of this condition is a cephalic index averaging about 0.75; hence the head is long and narrow, the length more nearly approaching normal than the height or width. The skull is rarely over 17 inches in greatest circumference, and the brain is extremely small, with a simple pattern of cortical convolutions. The condition occurs in not more than 1 percent of institutional patients. The cause is unknown, but the effect of irradiation, mentioned earlier (cf. Table 6), is suggestive. Mental ability is seldom above the imbecile level.

Macrocephaly is an enlargement of the skull which includes the face and is therefore distinguishable from hydrocephalus. There is no corresponding increase in brain size because the increase is in supporting structures and not nervous elements.

Brain Injury

That injuries to higher nervous centers may be related to mental deficiency has been long recognized. The evidence, unfortunately, is incomplete, conflicting, and confused. Straus and Lehtinen (*91*) estimate that 15 or 20 percent of mental defectives have suffered brain injuries before, during, or after birth which affect thinking, perception, and emotion but do not result in gross motor dysfunction. Doll, Phelps, and Melcher (*36*) in their classic study of mental deficiency due to birth injury are concerned primarily with severe neurological disturbances resulting in the types of motor dysfunctions known as cerebral palsy. These authors estimated that from 6 to 10 percent of their mental defectives were birth injured within their definition. As a special type it is the cerebral palsied with which we will be concerned.

According to Melcher (*72*), the physical characteristics of children so injured may include "spastic paralysis, athetosis, choreic movements, speech defects, and perhaps hydrocephalus and secondary epilepsy." the frequency of some degree of mental defect is probably high, although adequate data are not available. Smith (*87*) reports 75 percent of a group of 50 cases of cerebral accidents in childhood to be mentally defective. Doll (*30*) found "in a miscellaneous group of 150 cases of infantile palsy in children of school age most of which are presumably due to birth lesions, one-third are rated as mentally subnormal, and two-thirds as mentally normal." In a very careful study McIntire (*68*) reported that of 143 cases extensively studied 26 percent were mentally defective. Miller and Rosenfeld (*73*), studying test evaluation of 330 children with cerebal palsy, found one-half to have I.Q.'s less than 70. The differences in the percentages reported are probably due to the difficulties of carrying out standard test procedures because of limitations on behavior imposed by the physical conditions. It seems reasonable to accept the most conservative figure and estimate that about one-quarter of the cerebral palsied are feeble-minded. The converse figures, that is, the percentage of birth injury cases among feeble-minded, are much lower. Larsen (*64*) classified about 8 percent of his cases as birth-injured. Penrose (*3*) reports 10 percent of 1280 patients as having "neurological lesions," while, as has been mentioned, Doll and his co-workers say that from 6 to 10 percent of their mentally deficient subjects were found to be birth-injured.

Diagnosis aimed at discovering the nature and extent of the lesion, and whether it occurred at birth, is entirely medical and cannot be gone into here. Doll (*30*) suggests six fields of inquiry necessary for a complete psychological diagnosis: (1) clinical status, (2) birth and prenatal history, (3) neonatal history, (4) ontogenetic history, (5) history of pathology other than that associated with birth lesions, and (6) heredity. The psychometric examinations of these children is difficult and likely to be misleading. Their motor and speech handicaps make it impossible for them to show adequate responsiveness, and this may mask a real ability. Doll and his co-workers (*36*) found that the Binet and the Myers Mental Measure were the most useful tests with their cases. The Porteus Maze was satisfactory, but formboards were not. Lord (*65*), Sarason and Sarason (*83*), and Cotton (*23*), have all reported on methods of psychometric examination, but there is not yet any entirely satisfactory procedure. While standard psychological tests and specially designed ones are useful, the diagnosis of mental functioning must depend upon clinical insight in test interpretation.

Other Neurological Conditions

It would seem only reasonable that if congenital or natal injury or infection of the nervous system, especially of the cerebrum, results in mental deficiency, similar conditions at an older age might have similar effects. There is evidence that this is true. Congenital syphilis, with or without juvenile paresis, may have an etiological relation to amentia in some cases. Cerebrospinal meningitis, encephalitis, and other neural infections may have a similar relationship.

A great deal of interest has been shown in the mental sequelae of encephalitis lethargica. From a summary of the literature, Hetherington (*55*) says, "Children under three who have suffered from the disease have not been known to attain normal mental development afterward." While she says further that character changes are more frequently found as sequelae in older children, there is evidence that mental defects may occur.

In cases of encephalitis, especially in school children, there is usually some evidence in test results or school achievement by which one can indicate the presence of mental deterioration. This is not true if the cerebral inflammation or injury has occurred in early infancy, and it is therefore difficult to be sure that the amentia predated or postdated the acute febrile attack. In any case, the evidence that such neurological conditions may be significant etiological factors in amentia requires that the patient's disease history of early life should be secured for every case.

MANAGEMENT

In dealing with the mentally defective it is not enough to diagnose and label. The psychologist must be ready to make recommendations for care and training, and he is often expected to attempt a prognosis. To be able to do these things, he must be familiar with, although not an expert in, special education, institutions, vocational opportunities, and methods of social control of the subnormal. In this book we can present only the more general features of the various questions of management; we refer the reader to more technical discussions for details.

Most usually the psychoclinician must make his recommendations and prognoses to parents or other relatives, and on occasion, to professional workers in other fields, such as teachers, social workers, physicians, ministers, or lawyers. It must be made perfectly clear to the persons concerned, if they do not already know it, that there is no known method for curing feeble-mindedness, i.e., of making the patient normal. Surgical interference has been of no avail in microcephalus, and only rarely have there been desired results in hydrocephalus. Medicines have not yet been found which will correct the inadequacies of the feeble-minded. Thyroid therapy in cretinism sometimes results in improved general behavior, and Rudolf (*82*) reports improvement in social behavior in 44 institution inmates who were given thiamine over several months. Reports on investigations of drug therapy are infrequent and the evidence of beneficial results is inconclusive. Glutamic acid is a drug about which there have been a number of reports. Arbitman (*8*) reviewed 44 studies published between 1943 and 1951 which concerned the administration of glutamic acid to humans. Although 27 reports claimed an increase in intelligence the reviewer calls attention to the poor experimental techniques in practically all studies and concludes: "It may be said that there is no conclusive evidence that glutamic acid itself is a specific drug which can raise the level of mental functioning of defective children." No reports since 1951 give reason to change this conclusion.

Psychotherapy with the mentally deficient has had considerable attention. Clark (*22*) as early as 1933 reported favorably on psychoanalytic therapy with mental defectives based on a theory that "the general distribution of libido is such as to restrict the dynamic forces available for intellectual use." Chidester and Menninger (*21*) shortly thereafter presented a case with whom four years of psychoanalytic treatment resulted in behavior changes and an increase in I.Q. from 62 to 90. In an almost unique study of systematic psychotherapy with institutionalized defectives Thorne (*94*) carried out a program of therapy including suggestion, persuasion, advice, and reassurance with 68 patients. On the basis of behavior criteria, not including increased test scores, 45 cases showed improvement, 7 were worse, and 16 remained unchanged. Group psychotherapy with a group of defective boys was used by Cotzin (*24*) with positive values in better understanding of their behavior leading to changes of program which resulted in improved behavior. Finally, a therapy-teaching program with subnormals in a public school system was carried on by Schmidt (*84*) who reports spectacular improvement in abilities. This study has been critically reviewed by Kirk (*61*) and repeated without similar results by Hill (*56*). The crucial point of these criticisms is that the initial diagnoses were questionable.

Consideration of studies on psychotherapy with the feeble-minded raises two important points. The first is that the defective, as the normal, is subject to the same pattern and course of personality development. Therefore his full potential may not be realized because of emotional inhibitions, personality deviations, or environmental restrictions. In such instances psychotherapy may have the same favorable results that are found in normal children. For this reason alone greater attention to all types of psychotherapy with the mentally defective is desirable.

The sorts of improved behavior found in most of the studies reported do not include clear-cut improvement in ability as shown by test scores or otherwise. This introduces the second point mentioned above, i.e., the adequacy of initial diagnosis. Even if one does not accept the criterion of "incurability" in the definition of feeble-mindedness it is evident that initial diagnosis must be based on adequate study and not on test criteria alone. Neham (*76*) after reviewing thirty-odd studies on psychological treatment of defectives says: "There is no evidence apart from the highly questioned Schmidt report to prove that, after psychotherapy was administered to a group of mental deficients (so classified after careful differential diagnosis) such psychotherapy resulted in individuals of normal intelligence (so classified after careful diagnosis)." This statement is a fair summary of the evidence. Psychotherapy may help feeble-minded individuals in personality adjustment, and it may reveal inadequate diagnoses, but there is no evidence that it will "cure" the limited abilities of the mental defective.

The greatest possibility of aid to the feeble-minded in making their life happier and more useful lies in training. It seems safe to say that a large share of the social problems of the mentally defective—delinquency, dependency, immorality, crime, and all the rest of a long list of socially pathological conditions—may be accounted for by the difficulty of giving, and the lack of, suitable training. The feeble-minded are not all criminals, or all dependent, or all immoral. The same reasons that may be found to account for social pathology in any group are found among mental defectives. But, in addition, the ament lacks foresight to see the consequences of his acts. He is suggestible and readily follows a leader, and all too often the circumstances of his existence scarcely offer a desirable model. Evidence is available in great quantity to prove that these mentally inferior people may play useful parts in the scheme of things—but in most cases they can do so only with training and supervision.

Obviously, the training of the feeble-minded child, as well as of the normal child, must begin in the home. Therefore, one important task of the clinical psychologist is to help parents to help their children. This can be done, of course, only if the parents are themselves capable and willing. When they are capable but unwilling, or incapable but willing, or neither, then society must take the initiative in training the child. When the parents are both willing and reasonably capable of helping the child, there are certain things which they must clearly understand; among them are the following:

1. The performance ability of the mentally retarded child is growing in much the same fashion as the normal child's, but at a slower rate. The rate of growth, as well as the level reached at any particular time, is roughly indicated by the I.Q.

2. Within limits, the establishment of desirable habits is possible. The six-year-old with an I.Q. of 50 can hardly be expected to be or to do all the things that a normal six-year-old is or does, but he can be expected to do the things that are usual for a three- or four-year-old.

3. The establishment of such behavior habits as elimination control, talking, feeding, dressing, politeness, cleanliness, etc., is quite possible —and necessary. But they cannot be established at as early an age as in normal children. Furthermore, it is to be expected that they will take longer to establish.

4. Children of very low-grade ability (e.g., I.Q.'s below 40) will probably never be completely independent of the parents or other persons. Therefore, provision for their future must be made.

5. In homes where one child is defective and other children are normal, the defective child must have only his share of the parents' attention, but he must not be denied that. Oversolicitude for or rejection of the defective child is as undesirable as similar attitudes toward normal children.

6. There is, or rather should be, no stigma attached to inferior mental

ability. Therefore, any available assistance should be accepted for the child.

7. Specifically, the preceding point means that special educational regimes, either in the public school or in private or state institutional schools, should be taken advantage of.

8. It must always be kept in mind that the best welfare of the child is being sought. Hence, questions of expediency, comfort, and family pride must be secondary.

The psychologist and the teacher can be of great help to the parents in advising and planning specific training procedures. However, no amount of help will be of avail if the parents expect too much or too little from the child. The clinical psychologist must consider it one of his tasks to follow a child's progress closely and to be ready with aid, so that the child may make the best use of his possibilities.

After the age of six, society insists on more formal education than that usually provided for in the home. This is reflected in the free public schools and the compulsory attendance laws. Such laws make little or no exception for the subnormal. Therefore, we must assume that the schools have as much responsibility for training subnormals as they have for normals. At first, the schools undertook the responsibility by trying to teach the subnormal child in the regular classroom. The difficulties in this were soon recognized, and the first special class for subnormals was organized in Providence in 1896. Within the next five years classes were begun in Springfield, Chicago, Boston, New York, and Philadelphia. Since that time many of these classes have been begun; but they are not to be found today in even half of our city school systems. There were 1244 school systems that reported classes for the mentally retarded in 1952-53 to the U.S. Office of Education (*100*). These special educational provisions had a total enrollment of 113,565 children of whom 84,878 were in elementary schools and 28,887 in secondary schools. In institutions for the feeble-minded 16,546 children between 5 and 19 years of age were reported by the U.S. Public Health Service (*99*) in 1951. In 1953 there were approximately 34 million children of school age in the total population. If 2 percent of these are considered sufficiently retarded to require special educational provisions there are over 680,000 such children. It is evident that special educational provisions are provided for barely one-fifth of those children who might be expected to need it.

The aims of special education for subnormal children are essentially the same as those of education in general, but there is a slightly different emphasis in the direction of preparing for a more circumscribed socio-economic life. Specifically, the aims of education for the subnormal may be stated as follows:

1. *Health.* Adequate habits of good physical hygiene should be formed. As with the formation of all habits in the feeble-minded, this must be done specifically. Generalities on the need for cleanliness, care of teeth, avoidance of infection, etc., will not be sufficient. The mentally deficient child must be taught to brush his teeth, wash his hands and face, and so on, each as a special habit.

2. *Tool subjects.* Reading, writing, and arithmetic should be taught, of course, but the child's limitations will determine how extensively. Simple counting, number recognition, making change, and similar processes in arithmetic; ability to read signs and newspapers; writing his name and simple letters, should be a basic minimum in all cases.

3. *Social life.* Attention should be directed toward teaching the subnormal child something concerning his relations to social institutions. He may be taught some conception of the part he may play in political, religious, industrial, recreational, or other aspects of community life. More immediately, this social training may concern itself with his place in the family group and the contribution he may make to it.

4. *Personality and character.* It is as important for the subnormal child to have a stable, well-integrated personality as for the normal child. Perhaps it is even more necessary with this group to teach them socially desirable character traits such as honesty, industriousness, and the like.

5. *Leisure.* Perhaps one of the most difficult problems of all education is training in the wise use of leisure. For the subnormal many leisure-time activities are impossible; hence it is all the more necessary to devote attention to this problem in educating the mentally deficient. Music, athletics, handicrafts, group games, and other types of nonintellectual activities offer an extensive field of exploitation for the subnormal. It is quite probable that lack of socially acceptable means of occupying their leisure time is the indirect cause of delinquency among the feeble-minded.

6. *Vocation.* Occupations open to the subnormal are limited (see Table 11), and most of them require manual, concrete activity. Therefore, the schools should emphasize prevocational work in developing

manual skills. The use and care of tools in carpentry, masonry, electricity, and mechanics form the basis of more advanced training in a specific trade. While all the preceding aims are important, this one, which is related to the mental defective's whole economic adjustment, is probably most important.

The clinical psychologist's recommendation for special class work must be guided by several factors. In the first place, special class facilities must be available. Where there are none, the regular classroom teacher may be able to help the subnormal child if she is aware of his limitations and what they mean in connection with academic achievement. Second, the ability levels accepted in the special class will influence recommendations. I.Q.'s from 70 to 80 constitute the upper limit, and about 50 the lower limit, for most classes. Children within these limits whose school achievement or placement is low should be placed in special classes, at least for trial periods. Sometimes children with I.Q.'s below 50 are able to profit somewhat by work in the special class. Beyond the upper limit, children with I.Q.'s in the 80's and 90's may occasionally be sent to special classes for a limited period in order to bring specific academic achievement up to a satisfactory grade level.

Frequently, neither the home nor the school is entirely satisfactory in training feeble-minded children. An extremely low I.Q., inadequate home conditions, and socially undesirable established habits are three of the reasons. In such cases, training may best be carried on in a residential school or institution. As institutionalization is usually recommended more for social than educational reasons, we shall discuss this in the next section.

SOCIAL CONTROL

The most serious problems presented by the feeble-minded are their social maladjustments. This has long been recognized, and much energy has been devoted to the study of such problems. These studies have led to the conclusion that all the feeble-minded are potentially criminal, immoral, delinquent, or in general socially pathological. While this is no doubt true, it is also true that every individual is potentially antisocial. The basic difference is not in intelligence, but in the ament's lack of recognition of responsibility for or consequences of his acts.

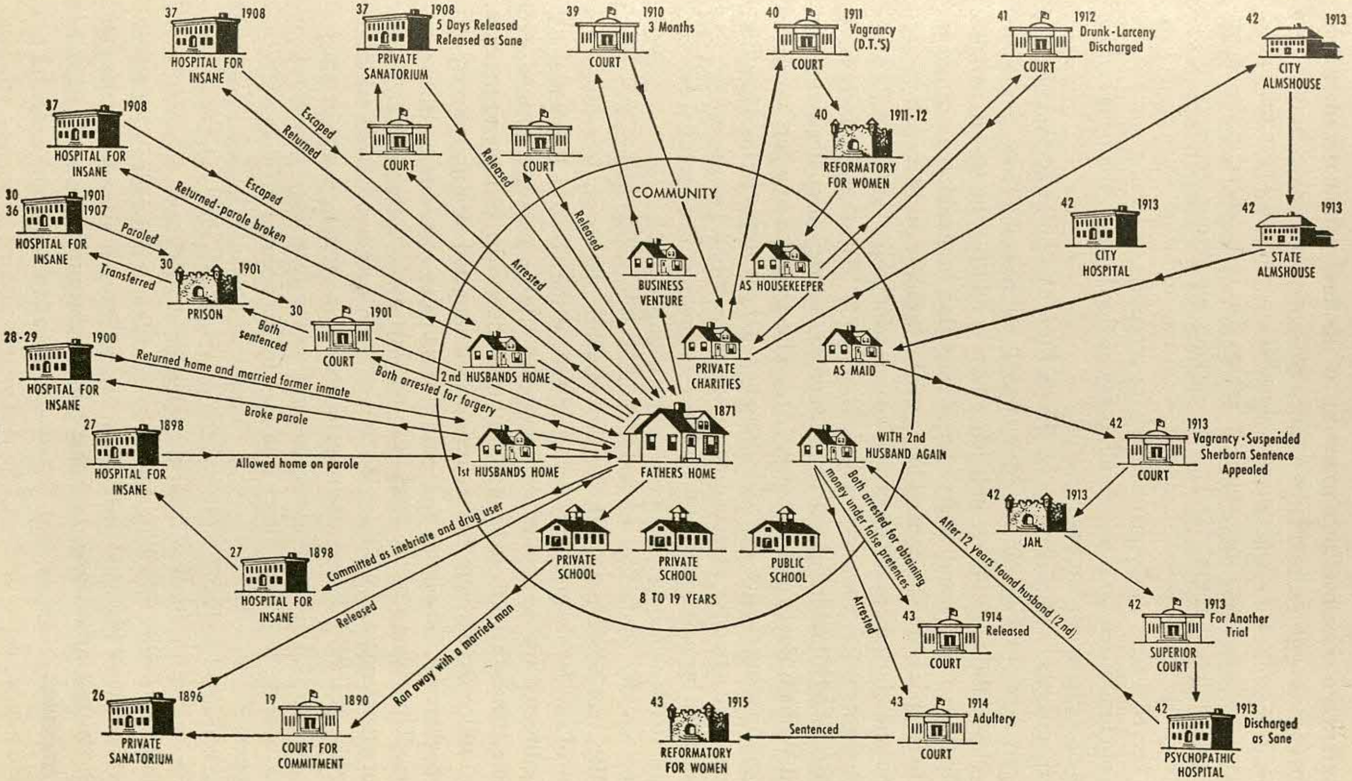
This conclusion, that the feeble-minded are all potentially antisocial, was followed by attempts to discover means by which society could protect itself from the insidious influence of its less fortunate members. Chains, bars, floggings, and later a more humane three meals and a place to sit around, were long the best solutions that society could offer. Even today many institutions offer little more than this last. There is, however, a growing realization that many of the evils once attributed to low intelligence, *per se*, are really due to inadequate training of people with low intelligence. This statement is perhaps difficult to prove because emphasis on training in social adaptability is relatively new, and therefore few data are available. But the contrast evident in the next two sections—the first indicating the socially undesirable aspects of the behavior of the feeble-minded, and the second illustrating socially desirable possibilities—does indicate the possibilities of realizing the social values as well as the social liabilities of the feeble-minded.

Social Maladjustments

Studies such as those of the Jukes, the Kallikaks, the Nams, the Hill Folk, and other socially degenerate families and communities show the possible close association of feeble-mindedness and antisocial or asocial behavior. Louttit and Frith's study (*66*) of the Dorbets illustrates social dependency without criminal tendencies in a feeble-minded couple who have traveled widely. Figure 4 from Hodder (*57*), while published nearly forty years ago, is still an excellent illustration of the social incapacity of one feeble-minded woman. After thirty years, the state was still spending money in having this woman tried in court and sent to institutions, only to have her released. Although it is much more extreme, her history is similar to that of the Dorbets, and shows the same involvement with public agencies as a result of her inability to assume responsibility for her acts.

The following cases illustrate typical problems of the defective delinquent. In the first account, that of an inveterate criminal of moron ability, it is interesting to note the absurd reason given for killing, and the almost childish spontaneity in confessing the crime after two years. This one criminal act of a feeble-minded man cost the county many thousands of dollars which would have been saved if his mental condition had been considered, in at least one of his many trials, and if he had been committed to an institution for the feeble-minded.

Case No. 3 (Thacher, *93*). Bill ——— is a man of about 39 years. He is a low-grade moron, is physically slight, and weighs about 120 pounds. His head



37 1908 HOSPITAL FOR INSANE
37 1908 5 Days Released Released as Sane PRIVATE SANATORIUM
39 1910 3 Months COURT
40 1911 Vagrancy (D.T.'S) COURT
41 1912 Drunk-Larceny Discharged COURT
42 1913 CITY ALMSHOUSE
37 1908 HOSPITAL FOR INSANE
30 36 1901 1907 HOSPITAL FOR INSANE
30 1901 PRISON
30 1901 COURT
28-29 1900 HOSPITAL FOR INSANE
27 1898 HOSPITAL FOR INSANE
27 1898 HOSPITAL FOR INSANE
26 1896 PRIVATE SANATORIUM
19 1890 COURT FOR COMMITMENT
COURT
COURT
40 1911-12 REFORMATORY FOR WOMEN
42 1913 CITY HOSPITAL
42 1913 STATE ALMSHOUSE
COMMUNITY
BUSINESS VENTURE
AS HOUSEKEEPER
PRIVATE CHARITIES
AS MAID
2nd HUSBANDS HOME
1st HUSBANDS HOME
1871 FATHERS HOME
WITH 2nd HUSBAND AGAIN
PRIVATE SCHOOL
PRIVATE SCHOOL
PUBLIC SCHOOL
8 TO 19 YEARS
42 1913 Vagrancy-Suspended Sherborn Sentence Appealed COURT
42 1913 JAIL
42 1913 For Another Trial SUPERIOR COURT
42 1913 Discharged as Sane PSYCHOPATHIC HOSPITAL
43 1914 Released COURT
43 1914 Adultery COURT
43 1915 REFORMATORY FOR WOMEN
Escaped
Returned
Escaped
Returned-parole broken
Paroled
Transferred
Both sentenced
Both arrested for forgery
Returned home and married former inmate
Broke parole
Allowed home on parole
Committed as inebriate and drug user
Released
Ran away with a married man
Released
Arrested
Released
Both arrested for obtaining money under false pretences
Arrested
After 12 years found husband (2nd)
Sentenced

FIGURE 4. Social Maladaptations of a Feeble-Minded Woman. (After Hodder.)

is asymmetrical and his hands are so small that he can slip them out of an ordinary pair of handcuffs with ease. He appears weak and peaceable, but his own family say that he is exceedingly mean and bad-tempered. He was in the reform school as a youth, and says in a laughing fashion that he has been in the county jail a dozen different times. He is now serving his second sentence in the penitentiary. He is a hopeless thief, and, according to his half-sister, his half-brother served a term in the penitentiary for accepting or buying some stolen goods from him. Firearms have an unholy fascination for Bill, and he is serving his present sentence for larceny of a gun.

His reputation as a thief is such that the sheriff of Washington County asked for the privilege of taking him, in May of 1917, to the county seat to clear up certain crimes. Bill began to tremble when he was told that he was to be taken to Washington County and was so frightened that he could not change his clothes to go, but had to be dressed by a guard. He finally could contain himself no longer and blurted out to the sheriff, after reaching his destination, "I know what you want me for; you want me for killing Booth." The sheriff was thunderstruck, but asked him some questions and soon had a complete confession of how he killed William Booth on October 8, 1915. This occurred in a partly wooded field in an adjoining county. Bill told where he hid the revolver he used in killing Booth and gave a number of facts capable of being verified. [Booth's wife and a young man had been convicted of the murder on tenuous circumstantial evidence after three trials which cost the prosecuting county $11,000.]

Taking up the confession of feeble-minded Bill, while there was much incredulity, yet Governor Withycombe, who has shown an interest in the problem of the feeble-minded, at the request of the Oregon Prisoners' Aid Society, directed the warden of the penitentiary to go over the ground with this feeble-minded man. Sure enough, Bill took the warden directly to the spot, some 50 miles from where the murder was committed, and found a 38 cal. revolver where he had placed it. It was covered with rust, due to 19 months' exposure. The balance of the story also checked up accurately, including the hiring of a certain pony by Bill to ride to the town where Booth lived, which the owner remembered. Bill was also remembered by a camping party he stopped with on his way to Tillamook where the revolver was found, and he was remembered as wearing hobnailed shoes, and also by his peculiar conduct which led the campers to keep watch all night. Tracks of hobnailed shoes were found near the murdered body of Booth, and Branson, who was convicted, was shown to have worn button shoes without the hobnails at that time.

As for Bill's motive in killing Booth, he said Booth had called him a "con" and had threatened him, and he believed he had "tipped him off" to the game warden. To those who know the feeble-minded there is nothing remarkable in Bill's confession.

One of the most serious social problems presented by the feeble-minded girl is sexual promiscuity. The subject of this next case cannot be called immoral because acceptance or rejection of the moral code implies some understanding of it. Custodial supervision of girls of this type would appear to be the wisest provision for the girl as well as for society.

Case No. 4 (Thacher, 93). In March of 1916, Mary ———, a decidedly attractive girl seventeen years of age, was picked up on charges of sexual delinquency, and four men were tried in the circuit court of Multnomah County on the charge of contributing to the delinquency of a minor. Two boys were tried in the juvenile court on the same charge. Two men were convicted and sentenced to jail for four months each, and two men were acquitted by the trial juries. The two boys pleaded guilty in the juvenile court and were sentenced to the reform school, one of them being paroled. About six more men and boys were accused informally of cohabiting with this girl, but the charges against them were not pressed. These offenses were committed between August, 1915, when she left the convent, and February, 1916. The girl was held in the House of the Good Shepherd during the grand jury investigations and trials in the criminal court, but in July of 1916 she was released from its custody though there was a charge of delinquency pending against her. The District Attorney's office estimates that these cases in which the girl was involved cost the county some fifteen hundred dollars.

This pretty girl was examined by Dr. Rowland and was found to have the mentality of a ten-year-old child. She complained of having dizzy headaches and of suffering pain in her eyes. She stuttered in the characteristic fashion of the feeble-minded and was unable to read well. She had no power of abstract reasoning and could not tell the time—never could learn to do so. She was also entirely lacking in the capacity to estimate the passage of time. An occurrence which consumed a minute's time she was liable to say took from three to five minutes. However, she had a fairly good memory and composed doggerel verse which impressed the careless observer as an indication of mental power. Mary's mother is weak-minded and her brother, who is about 21, has epileptic fits and heart disease and from all accounts is also probably weak-minded. Mary was living at home at the time she was cohabiting with a dozen different men and boys, and her mother was as incapable of directing her daughter's conduct or even knowing what she was doing as a ten-year-old would have been.

Just before Mary was arrested for delinquency, the mother discovered that Mary's half-sister, a little girl seven years of age, had been raped. A young man who had been cohabiting with Mary and who admitted sexual relations with her less than 24 hours before the rape of the little sister occurred, was charged with this offense and indicted by the grand jury. It was alleged that the rape of the girl had occurred during the time that Mary left the room, leaving her little brother and sister with this young man. Mary said she had gone out of the room and stopped a moment in the hall, and because of inability to estimate the passage of time said that she was gone between five and ten minutes.

An investigation was made and it was found that Mary's brother had warned this young man just before he was arrested that the little girl had been raped. The family thought this young man was guilty, and the brother suggested that he run away and leave the state. An attempt was made to see Mary's brother to question him, but he was not at home at the time an officer called. When he did return the same afternoon and learned of the inquiry for him, he took a train that evening for California, beating his way, and has not returned to Portland up to the present time. All of the circumstances of the case indicated that Mary's weak-minded brother was probably the guilty one in the matter of the rape, and the charge against Mary's lover was dropped, though he served four months in jail for cohabiting with Mary.

Mary's mother begged so constantly for Mary's release from the House of the Good Shepherd that the District Attorney's office consented on the ground that she was irresponsible and had been more sinned against than sinning. The weak-minded mother promised to take Mary to a farm and care for her. This was in July of 1916.

In April, 1917, a request came to W. G. MacLaren of the Pacific Coast Rescue and Protective Society to get Mary and take her away as she had been left to her own devices by her mother (who had gone back to the city), and has become a public nuisance. Investigation showed that Mary was cohabiting with various men and boys, and was infected with gonorrhea, and was pregnant. On the day she was brought back to Portland she wrote to one of her boy lovers that she would not tell on him, but when her babe was born she would kill it and then rejoin him.

Then she made a half-hearted attempt to kill herself which necessitated several hours' work over her. She is now in the Louise Home being treated for gonorrhea and awaiting the birth of her baby.

Data showing the frequency of delinquency and dependency among the feeble-minded are not available. Still, it is hardly necessary to dwell further on the possible social dangers of these mental deficients. Case studies and statistical surveys agree in pointing out that the feeble-minded constitute an appreciable proportion of the socially abnormal classes. Therefore, all programs for the guidance and management of a feeble-minded patient must consider the possibility of existing or future social difficulties.

Social Adaptation

The other side of the picture is presented in a number of studies dealing with the vocational and economic adjustments of feeble-minded persons. The general findings of these studies are fairly summed up in the following quotation from Shimberg and Reichenberg (*85*): "We conclude that it is possible, after individual study of defectives, to estimate with considerable accuracy the conditions under which they will make satisfactory adjustment. This study seems to show that the defective can be so treated as to be a positive asset in the community."

TABLE 9. Economic Status of Subnormal and Normal Groups

	Subnormal Group (122)		Normal Group (90)	
	Cases	Percentage	Cases	Percentage
Self-supporting	50	41.0	48	53.3
Supported by husband	29	23.8	24	26.7
Husband and wife both working	16	13.1	7	7.8
Total self-supporting	95	77.9	79	87.8
Partially self-supporting	6	4.9	2	2.2
Family Welf. Ass. suppt. tempor.	8	6.6		
Family Welf. Ass. suppt. prolong	4	3.3		
No job; with parents	5	4.1	9	10.0
State care or widow's pension	4	3.3		
Total cases	122		90	
Own or buying home	37	30.3	22	24.4
Saving money	19	15.6	32	35.6

Fairbank (*42*) has published one of the most interesting of these studies. She reported on the social adjustments of a group of children from the Locust Point District of Baltimore studied by Campbell (*17*) seventeen years before. Of the 166 children who could be traced, 122 had been found defective by Campbell. The adjustments of this defective group were compared with those of a group of 90 children who had not been diagnosed as subnormal by Campbell. The data in Tables 9 and 10 show the economic and occupational adjustments of these two groups. Certain other findings may be briefly summarized: There were more marriages and slightly more sex delinquency among the subnormals;

there was more dependency shown by affiliation with charitable agencies among the subnormals; the living conditions of the self-supporting subnormals were not so good as those of the normals; there were more juvenile court records among the subnormals, but the police court records were about the same; there was greater migration to better parts of the city by the normals. A considerable number of reports on social and vocational adjustment of mental defectives have been published. Tizard and O'Conner (*95*) have reviewed this literature and indicate that there is much evidence indicating that vocational and social adjustment is possible for the subnormals, but there is need for further research on methods of training and on the factors favoring success. Temperamental characteristics are as important as ability in adjustment although Tizard and O'Conner (*96*) in a second review conclude that while the defectives may be more liable to emotional instability they probably compare favorably with nondefectives from the same socioeconomic class. Hamlett and Engle (*49*) found that a group of subjects successful on furlough, and a group unsuccessfully furloughed from the same institution had significantly different scores on the Mental Health Analysis blank, with the successful subjects showing better personal

TABLE 10. Types of Occupation of Subnormal and Normal Groups

	Subnormal Group (122)				Normal Group (90)			
	Men	Women	Cases	Percentage	Men	Women	Cases	Percentage
Factory worker	17	26	43	35.2	1	19	20	22.2
Unskilled laborer	5	—	5	4.1	2	—	2	2.2
Domestic worker	—	8	8	6.6	—	3	3	3.3
Chauffeurs	9	—	9	7.4	3	—	3	3.3
In R.R. shops and yards	10	—	10	8.2	2	—	2	2.2
In ship yards, etc.	7	—	7	5.7	6	—	6	6.7
Supervisors (tally-keepers, etc.)	3	—	3	2.5	3	—	3	3.3
Skilled laborers	9	1	10	8.2	7	—	7	7.8
Clerks, stenographers	4	2	6	4.9	8	21	29	32.2
Dictaphone operator	—	—	—	—	—	1	1	1.1
In business	3	1	4	3.3	3	1	4	4.4
In city or government jobs	1	—	1	.8	3	—	3	3.3
In profession	1[a]	—	1	.8	1[b]	2[c]	3	3.3
Never worked steadily	3	—	3	2.5	1	—	1	1.1
Worked only at home	—	12	12	9.8	—	3	3	3.3

[a] Barber.
[b] Lawyer.
[c] Teachers.

adjustment. When we consider that these reports often deal with people for whom there was no adequate supervision, we may conclude that the dark picture of social degradation of the mentally defective is not entirely true.

Channing (*20*) has prepared a monographic report on the occupational adjustment of 949 boys and girls who attended special classes for subnormals in seven cities in different parts of the country, and of 167 persons discharged from two Illinois state schools for the feeble-minded. This study clearly shows the possibility of industrial placement for subnormals. The types of jobs held for at least one year by persons at various mental age levels are shown in Table 11. The following cases indicate something of the occupational histories of mental defectives. The type of occupation in which the boy in the first history has been so successful is that in which one expects to find the feeble-minded; in his case, supervision has apparently played a large part in his successful economic adjustment.

Case No. 5 (*20*). Edward, another boy whose intelligence quotient was less than 50, had been steadily employed. When he left the institution with the approval of the authorities after a stay of five years, he was 19 years of age. He had never been a behavior problem but was dull in appearance and could mutter only a few syllables and grin when interviewed by the Children's Bureau representative. At least partly through the efforts of his relatives, his industrial adjustment had been successful and he had given no trouble at home. He had had a great deal of difficulty in finding work when he first returned home. The employment bureau to which a social agency had sent him said it could not find anything for him because of his mental defect. Finally, five months after he left the institution, his brother-in-law obtained a job for him at a large meat-packing plant in which he was employed. Edward's mother took him to work for the first few days, and his brother-in-law looked after him in the shop. After leaving work in the afternoon, the boy went directly home and stayed in the house until his mother returned from her work. Outside of working hours he went nowhere unless accompanied by his mother. *From the day he first went to work to the day he was visited, nearly 3.5 years later, the boy had held the same job, that of laborer, opening and shutting refrigerator doors.*[2] He was said by his employer to be a very regular worker, never missing a day. His wages had been raised at the time of a general raise in the plant, from $15 to $20 a week.

Two points in the next history are noteworthy. One is the great stability of employment shown by the girl in staying at one job for four years. Of more particular interest is the work required of her in the first place. While we are not told from how many different labels she had to select, nevertheless the perceptual habits involved might ordinarily not be expected from a girl of this low level.

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[2] Italics not in original.

Case No. 6 (20). Anna's intelligence quotient was 47 (Goddard revision) about the time she left the institution, but was 57 according to an earlier test. She had worked steadily between 80 and 90 percent of the seven years since she had left the institution. Her parents were illiterate and unable to speak English. Her father was a laborer. Anna came to the attention of the juvenile court because of sex delinquency when she was 12 years of age and in the third grade at school. She was sent to the state institution for the feeble-minded, where she remained 2.5 years, until she was 15 years of age.

Upon returning home, Anna found a position almost at once in a paint manufacturing establishment through a forewoman who knew her family. At first she pasted labels on bags of plaster and later labeled paint cans, work that involved picking out the right kind of label for the different kinds of paint. She stayed in this place nearly four years; her wage was raised from $13 to $17 a week. The superintendent of the factory said that she had been a regular and careful worker until about two months before he finally discharged her, when she began to stay out so late at night that she was unable to do her work properly the next day. Anna then got a position in a candy factory wrapping candy, which she kept for more than a year. At the end of this time she married, but she continued to live with her parents and to work. Her next position was in an establishment that manufactured felt products. She was employed to string felt washers for gaskets at $12 a week, later being advanced to $15. She left this position after six months because she was pregnant. A few months before the girl was visited by the bureau agent, her husband had been killed by a police officer while robbing a store. At the time of the interview Anna was staying at home, keeping house for her father and her sisters, and making clothes for the baby she was expecting.

The following case illustrates the exceptional type of occupation that feeble-minded persons may occasionally engage in. The special interest and supervision of his employer is probably the most important single factor in the boy's development in a skilled trade.

Case No. 7 (20). Chester (intelligence quotient 54) was an automobile mechanic, one of the few skilled workers found. He had had but one position and had been employed practically the whole time since he ran away from the institution.

Before his commitment to the state institution for the feeble-minded, Chester's home surroundings had not been favorable. His parents and other members of the family quarreled frequently, and his father had finally died in an institution for the insane. His mother, according to the records of a relief agency that had formerly aided the family, was crippled and at one time used to sit in a big chair with a whip to discipline the children. When Chester was 17 years of age he was brought to court on a charge of raping an eight-year-old girl. He was sent to the Lincoln institution and remained there two years.

Chester had had two positions before going to the institution, driving a wagon for a junk collector and working in a stable caring for horses. About two weeks after his return, a friend of his brother employed him in a small automobile repair shop and taught him to clean and repair cars. At the time of the study, about 3.5 years later, Chester had become a skilled automobile mechanic, and his pay had been raised from $22 to $30 a week. His employer stated that he was slow but never forgot what he had learned, and had deft fingers. He apparently had no behavior difficulties after returning from the institution. He had left his home several times on account of the family quarrels and stayed at his employer's home. At the time of the study, his mother having died and his home having broken up, he had lived with his employer six months. His employer said that he was as fond of Chester as of his own children, and that on account of his mental defect he supervised him more carefully than his own boys.

In Table 11 various types of occupation engaged in by persons of different mental age levels are shown. The sources of these data are: (a) Hanna (*50*), whose placements were based on grade of work within an institution for the feeble-minded, (b) Beckham (*12*), whose tables are based largely on Hanna, but who includes material from other sources which he does not specifically mention; (c) Channing (*20*), from the tables showing the last employment of boys and girls earning more than $20 a week. Only positions held for more than one year by individuals with I.Q.'s less than 70 have been selected. This selection merely shows what sort of jobs have been held. It must be understood that the inclusion of occupations in these tables does not mean that all persons with the specified mental age could do the work. But it does indicate the sort of jobs held for appreciable periods of time and therefore suggests possible jobs that the mentally subnormal might be trained to do. Mathews (*71*) reports the following jobs held by persons with mental ages less than eight years: roofer's helper, restaurant helper, learning upholstering trade, fire tender in roundhouse, repairing auto radiators, nailing boxes, machinist helper, elevator operator. Unger (*98*) concludes, from a study of attempts to train subnormal girls as garment machine operators, that no attempt should be made to train any subnormal girl (1) with a mental age below 8 years or an I.Q. below

Table 11. Occupations Suitable for Various Mental Ages

BOYS

M.A. 5	M.A. 6	M.A. 7	M.A. 8	M.A. 9	M.A. 10
(a) Rope braiding Stable work Clothes sorting Handle freight Brush making Handle garbage Net making Handle cinders Garden work	(a) Laundry work Farm work Dairy work		(a) Blacksmith helper Repair mattresses Painter's helper	(a) Shoe repairing	(a) Carry mail (institution) Printing
(b) Sandpaper furniture Scrub floors Operate mangle	(b) Mow lawn Mix cement Kitchen scullion Bricklayer's assistant	(b) Rough painting Drive team Plow Cane chairs Make brooms Simple carpentry	(b) Clean boiler tubes Load hay Cut hair and shave Shingle and set glass Make wooden toys	(b) Operate foot-power printing press Block paper into pads Repair furniture Paint toys Harvest crops Learn alto horn and drums Fancy brush making	(b) Set and sort type Paint signs Electrician's helper Steamfitter's helper Make forms for cement Shellacking and varnishing Learn bass horn and cornet
	(c) Common laborer	(c) Spray paint Clean automobiles Teamster Drive truck Helper on truck	(c) Machine operator (automobile industry) punch press trimmer buffer drill press grinder sprayer gluing leather cutter Tempering clay (machine) Peddler Stock boy Press clothing Baker's helper	(c) Machine operator tenoner straightening wire-bending Shackling (food products) Operate motion picture machine Vest maker	(c) Auto-top builder (hand) Operate gear-cutting machine Boilermaker apprentice Shipping-clerk

Lather
Assembling dials
(electrical)
Feeding tack machine
Soldier

GIRLS

(a)
Domestic work
Operate mangle
Prepare vegetables
Sew carpet rags

(b)
Follow pattern in simple sewing

(c)
Folding paper boxes

(a)
Hand ironing
Fold clothes
Hand weaving
Knitting

(b)
Crochet open mesh
Weave rag rug with pattern
Simple laundry work

(c)
Operate small punch press

(a)
Hand sewing
Machine sewing

(b)
Plain and Italian hemstitching
Cross-stitch
Braiding
Simple packing of small articles

(c)
Bunch maker (tobacco)
Machine pack tobacco
Bottle vinegar
Fell sleeves by hand
Case sausage
Housework

(a)
Rug weaving
Basketry

(b)
Operate bead loom
Stencil work
Dress doll without help
Operate scarf loom
Make dresses cut out by others
High-grade domestic work

(c)
Factory inspection of auto headlights
Baste canvas and patches by hand
Serging sleeves (machine)
Time keeper
Operate tag-cutting machine
Wrapping

(b)
Knit stockings and mittens
Make cloth toys
Make pottery
Operate automatic rug loom
Cut out and make dresses
Plain cooking
Sew mounts on cards
Sew buttons

(c)
Core maker
Operate drill press
Assemble metal horns

(b)
Raffia and reed work (pattern)
Swedish embroidery
Operate sweater machine
Operate looper for stocking toes

(c)
Sales girl

70, (2) who shows visible signs of mental retardation, (3) who shows emotional retardation, (4) who has an inferior personality make-up.

This brief résumé of the occupational and economic success of mentally subnormal individuals indicates that social degeneration is not their necessary lot. It also suggests that training and supervision are important in the adequate socioeconomic adjustment of the feeble-minded. The programs of vocational rehabilitation of the U.S. Office of Vocational Rehabilitation and the several states is available to mental defectives under certain restrictions. DiMichael's (*28*) monograph includes material by several authors which illustrate the values to be found in this program for facilitating the vocational adjustment of the mentally retarded.

Segregation

Segregation of the feeble-minded has long been held to be a solution of the social problems presented by these defectives. The preceding two sections illustrate the two major arguments for segregation. The earliest in point of time, and perhaps the one most frequently thought of today, is the protection of society. A later argument, and one which would seem to have greater value, is the possibility of training the defective to occupy a valuable, if humble, place in society. A third argument may be advanced, that in a limited number of cases, where ability is extremely low or where socially undesirable habits are firmly established, the ordinary agencies of the community cannot take care of these defectives and therefore it becomes an obligation of the state.

The most usual argument against segregation is economic. The cost of maintaining institutions is too great. In 1951 the *per capita* cost in the United States of maintaining state institutions for feeble-minded and epileptics was $807.11 according to data of the U.S. National Institute of Mental Health (*99*). The per capita cost in the several states ranged from $410.11 to $1443.84. These amounts are either too high or reasonably low, depending upon how one looks at it. They are too high if thought of as outright expenditures for which the state gets no adequate return. On the other hand, it is quite probable that the cost of maintaining these people in the community is at least as much and in many cases may be a great deal more.

It is true that it is physically impossible to provide institutions for all of the mentally defective. But this is neither necessary nor desirable.

There are three functions of institutions: (1) to afford custodial care for the idiot and imbecile patients who are completely unable to care for themselves and who have no family in a position to do so adequately; (2) to afford custodial care for the defective delinquents who are social dangers; (3) and probably most important, to provide training for, and subsequent supervision of, the patient's vocational and social adaptation to the community in which he lives. All institutions for the feeble-minded are today making an effort to make the third of these their most important work, although they vary a good deal in the success with which they do so.

We cannot be concerned here with all of the many questions that arise in connection with the problem of segregation of the feeble-minded. Neither can we discuss the work of the psychologist within the institution. The clinical psychologist in school, court, or other clinics is constantly faced with the question whether or not a given child should be institutionalized. There is, of course, no general answer that can be given to this question, but perhaps some tentative guiding suggestions will be useful.

Institutionalization *should* be recommended:

1. For idiots and low-grade imbeciles when the family is unable or unwilling to care for them, or when there is no family.

2. For all grades of feeble-minded when definite antisocial habits are present, and when the persons present a menace to other people. Such individuals should be committed to state schools for the feeble-minded rather than to jails or prisons.

3. For the higher-grade feeble-minded when the community does not provide adequate training and supervisory facilities. Institutionalization for these people should be for a period sufficient for training, and should be terminated only on the definite demonstration that the person involved can adapt to the social life of a particular community. Even then, his life should be officially supervised.

4. For girls of higher-grade ability, at least temporary custodial institutionalization is probably more necessary than for boys.

5. For either (1), (2), or (4) in this list, private residential schools should be recommended if those responsible for the patient can afford to send him.

Institutionalization *should not* be recommended, or should be only tentatively recommended:

1. For children of any grade whose parents are willing and financially able to care for them by providing sufficient private training and supervision.

2. For younger children who have not had an opportunity of demonstrating whether or not they can adjust. This is true only if satisfactory training and supervisory facilities are available in the community.

3. For any child, even though he has a definitely inferior performance level, who is satisfactorily adjusting to the community in which he lives, and gives promise of continuing to do so.

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Chapter

5

School Retardation

THERE are children who are neither feeble-minded nor normal. On a normal probability curve of the distribution of best scores there are those below the middle 50 percent and above the lowest 1 percent who are such as these. Terman classifies those of 70 to 80 I.Q. as borderline and those of 80 to 90 I.Q. as dull. There are valid arguments against the use of definite boundaries but these are the children who constitute a significant segment of our school population. In their school adjustment, and also in other life adjustments, these children are retarded. However, there are many other reasons for school retardation than intellectual lack. Therefore the problem of school retardation for the clinical psychologist is rather more extensive than is often recognized by the classroom teacher.

Unlike other groups of problems discussed in this book, retardation is peculiarly related to the school. Therefore any definition must be educational. To be retarded means that a child is overage for his grade. The reason for his retardation may lie with him, with the teacher, with the school system, with the family, or with two or more of these. It is the clinician's task to determine the causative factors, and institute measures to correct them. Thus our concern is with each individual child who is retarded, and not with the administrative problems involved in promotion or nonpromotion.

Although there is a tendency during the past decade or so, for many school systems to promote children according to age, there are still many

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children overage for their grade. Pauley (*13*) found many children were retarded even in a system which had social promotion "as an administrative policy."

Mort and Featherstone (*12*) secured data on promotion practices from 36 school systems carefully selected to represent an adequate sampling of all city school systems. The condensed data in Table 12 show the percentage of accelerated and retarded in the three key grades—first, seventh or first-year junior high, and tenth or first-year senior high school. The increase in percentage of children retarded in the high grades is clearly evident in both annual and semiannual promotion schools. These data suggest the desirability of closer individual attention to pupils in the lower grades so that when adjustment is possible it may take place early in the school career.

TABLE 12. Percentage of Acceleration and Retardation in Thirty-Six City School Systems
(After Mort and Featherstone)

	Semiannual Promotion			Annual Promotion		
Grades	1	7	10	1	7	10
Under age	5.5	14.2	12.2	22.8	19.7	22.0
Normal age	78.4	46.4	40.8	73.9	58.6	62.1
Over age	16.1	39.4	47.0	3.3	21.7	15.9

TABLE 13. Amount of Retardation of Sixth-Grade Children

Amount Retarded		Annual Promotion Schools	Semiannual Promotion Schools
Years	Semesters	Percentage	Percentage
	1		10.8
1	2	20.5	11.1
	3		2.4
2	4	5.3	2.1
	5		.5
	6	1.2	.3
	7		.0
4	8	.2	

These data give no indication of the degree of retardation of various children in these classes. In Table 13 are shown the percentages found by Mort and Featherstone of all children in the sixth grade who were retarded in various degrees. The slighter degrees of retardation are evidently much more frequent, but there is an appreciable number who are retarded two or more promotion units—years or semesters, as the case may be. These more extremely retarded children must have failed more frequently than the others. A pertinent question arising from this is, "In what grades are failures more frequent?"

From an analysis of 25 annual reports of city school superintendents, Heck (*6*) found the percentage of failures in the various systems ranging from 4 to 17, with a median at 9.1. Sandin (*16*) over a decade later, on the basis of state education reports, found that the percentage of nonpromotion ranged from approximately 7 to 15, with a median at approximately 10. According to this same author, the cumulated nonpromotion percentages ranged from 11 to 54, with a median of the order of 35. Thus the problem of retardation in terms of the number of children involved is appreciable.

Heck also determined from 17 of the reports he studied that the first eight grades, when arranged in order of the percentage of failures from the highest to the lowest, ranked in the following order: I, II, V, VII, VI, III, IV, VIII. This finding is corroborated in all essentials by the work of Mort and Featherstone, already referred to. For annual promotion schools, these two writers report 18.8 percent failure in the first grade, 8.9 percent in the fifth grade, and 0.7 percent in the seventh grade. Their data for semiannual promotion schools are essentially the same.

From the material just presented and that summarized by Sumption and Phillips (*17*) there are at least two findings that have decided significance for our particular interests. First it is evident that by the sixth grade approximately 7 percent of the children are retarded two or more years. Second, when we investigate the grade location of the failures which produce such retardation we find that the lower grades have an extremely high failure rate. Clinical study of the individual child may still help in alleviating the administrative problems of failure and retardation. This method probably more than any other, not only gives assistance in the administrative problems, but is also of fundamental importance in helping the child adjust to his work and to his life problems in general.

CAUSES

The first task of a clinical approach to the problem of retardation is the determination of the cause or causes of a particular child's retardation. The classroom teacher who has watched a child's work for a semester or a year and then decides that she cannot promote him, surely can be expected to express a reason, or several, for his failure. Suggestions given by teachers may be excellent starting points in the study of the child, although they may be incomplete and at times completely erroneous. As an example of reasons for failure given by teachers, we present the data in Table 14, taken from Percival (*14*). This table also shows the frequency with which the various reasons are mentioned by teachers in city and country schools. The percentages are based on a total of 9342 failures, representing about 16 percent of the total number of children repeating grades, reported for the year 1924–25 in the State of California. This same pattern of reasons for failure was found by Coleman (*3*) at a much later date and in a different school system.

TABLE 14. Teachers' Reasons for School Failures

Cause	Percentage of Cases	
	Cities	Counties
Learns very slowly	36.7	36.9
Lack of application, attention, etc.	35.5	33.3
Entered with weak foundation	22.5	22.3
Change of schools during year	17.8	19.0
Absence (illness)	16.7	10.9
Foreign-language handicap	13.0	14.6
Intelligence tests show pupil subnormal	12.9	20.5
Immaturity	12.7	11.0
Poor home conditions	10.0	13.7
Absence (other than illness)	8.5	8.2
Poor health (pupil not absent)	5.2	3.9
Defective vision	2.3	3.0
Other physical defects	2.1	2.8
Defective speech	1.8	1.6
Defective hearing	1.0	1.1
Total number of pupils failing	7531	1811

This list does not exhaust possible reasons for a child's failing work in school. Other factors which have been mentioned include specific disabilities in one or two school subjects, teacher's attitudes, work habits, personality and behavior difficulties, teaching methods, etc. It is at times a knotty clinical problem to decide whether certain of these factors stand in a cause or effect relation to poor work at school. For discussion of these several factors we may conveniently classify them into three groups: (1) those primarily concerning the child, (2) those in which the school, in its system or personnel, is at fault, and (3) those in which home conditions play an important part.

The Child

Low intelligence as represented by test performance probably accounts for a larger amount of retardation than the percentages indicated under that head in Table 14 would suggest. Most of the children in the groups "learn very slowly" and "immaturity" would probably be found to have low test performance. Children with similar low performances would be found in significant numbers scattered throughout all the remaining classes. The larger proportion of these mentally slow children do not exhibit a deficiency sufficiently severe for them to be classed as feeble-minded, as described in the preceding chapter. Baker (*1*) claims that about 2 percent of school children are sufficiently retarded, with I.Q.'s between 50 and 75, to require a special educational program organized in the form of special classes. In school systems which provide such classes, they are usually ungraded and therefore the children in them can hardly be considered academically retarded in the sense that we are using the term here. In systems without special classes, of course, these very low-grade children would be counted among the retarded.

A considerably larger number of school children, approximately 15 to 18 percent according to Baker, have an ability level lying between that of the feeble-minded and of the conventionally accepted average group. The I.Q.'s of this group range from 70 or 75 to 90 or a little below. There is probably some rough correspondence between the level of test performance of these children and their school success. Those having I.Q.'s in the 70's will be more retarded and have a more difficult time with school work than those high in the 80's. There is, of course, far from a perfect correlation.

We can calculate certain theoretical minima of retardation if we allow certain assumptions, such as the adequacy of test measures, constancy of the I.Q., equality of all factors other than ability, etc. While in a specific case one or more, or even all, of the assumptions will not hold, such theoretical data as are shown in Table 15 indicate what may be expected from children with I.Q.'s approximating those given. The second column of the table shows the C.A. at which a child with the specified I.Q. will have an M.A. of six years—when presumably he is able to begin first-grade work with some hope of adequate achievement. If we assume that these children start to school when they are exactly six years of age and are kept in the first grade until they show adequate achievement, they will be retarded to approximately the extent shown in the third column. If they stay in school until they finish the eighth grade, they may do so at the C.A.'s shown in column four and will then be retarded as shown in column five. It is hardly possible that these theoretical figures will be satisfied in a specific case. For example, if a child is too large, thus making social adjustment to smaller children difficult, teachers are likely to promote him. On the other hand, older children who are retarded lose interest in school work and increase their retardation by lack of application, leaving school as soon as they legally may. In spite of such factors, calculations like those shown do have some value in prognostications of academic adjustment.

TABLE 15. Theoretically Expected Retardation

I.Q.	First Grade C.A.	First Grade Retardation	Eighth Grade C.A.	Eighth Grade Retardation
70	8.57	2.5	18	5
75	8.00	2	17.3	4.3
80	7.50	1.5	16.25	3.25
85	7.06	1	15.3	2.3
90	6.60	.5	14.4	1.4

The actual attainments of this group of children in one or more subjects may be greater or less than theoretical expectancy. They are overage for their grade, and their additional years of life have afforded experiences greater than those of younger children. Therefore we may expect to find their interests, and to some extent their ability to satisfy them, in advance of their M.A. Other factors discussed in this chapter, such as attitude toward school, attentiveness, and home attitude, may affect the achievement of a subnormal child in the same way that they affect the performance of normal or superior children. The task of the clinical investigator is first to establish a mental level and then to examine further the influence of other factors. Only in cases where achievement is commensurate with mental age can one feel satisfied that the child is making most of this opportunity.

Defective *physical condition* of a child often results in retardation. Sensory defects in vision and hearing, malnutrition, cardiac conditions, glandular disturbances, and various types of crippling defects are among the most important of the physical difficulties. The importance of such illness in respect to school achievement alone is sufficient justification for an adequate and periodic health examination of all school children.

As far as the clinical psychologist is concerned, he must accept the physician's diagnosis; but he must be alert to the possibility of such defects existing, and when in doubt he should secure a thorough physical examination. Unfortunately, sensory defects—faulty vision in particular—may exist for several years without being recognized. Through these years the child struggles with his class work without success, and perhaps is subjected to a series of failures. Following recognition and correction of the defect his achievement improves, and given sufficient mental ability, he may overcome his retardation. The following case illustrates an example of an unrecognized sensory defect:

Case No. 8. Stanley was eight years two months old when referred to the Detroit Psychological Clinic by the school principal because he was unable to read. He was given an individual mental examination and obtained an M.A. of 12–1 and an I.Q. of 147. On previous group mental examinations he had A ratings indicating superior ability. He was two years overage for his grade which was 1A. It was noted that the boy watched the examiner's face rather closely. It was not until the examiner asked if his mother could come to school while Stanley's back was turned, and the boy did not respond that defective hearing was suspected. The next morning the school physician examined the boy and found badly infected tonsils. A recommendation for a tonsillectomy to be followed by an audiometric examination was given the mother. There was some hearing loss, but not enough to warrant placement in a school for deaf children. Because of behavioral difficulties he was placed in a special class and with special reading help he was reading seventh grade material within a year. This problem could be summed up thus: Due to lack of ability to hear small differences, especially consonantal beginnings and endings he was unable to associate sounds with words. It was suspected that because of the boy's high I.Q. he had learned to read lips and thus prevented earlier recognition of his auditory handicap.

Specific disability in one or more school subjects, especially in the first three or four grades, is frequently a contributing factor to general retardation. The tool subjects—reading, writing, spelling, and arithmetic—are all important for successful achievement in the content subjects in the higher grades. Therefore, if a child is unable to read, as was the case just described, all of his work suffers. The problems involved in such specific disabilities are so extensive that we shall devote the next chapter to their consideration.

Personality or conduct difficulties may, in individual cases, be important reasons for poor school work. Also, children are found whose personality or conduct disorders are aggravated, if not initiated, by their inadequate adjustment to school. From a study of 123 children who were problems in the classroom, and 107 truants, whom she compared with nonproblem children, Johnson (*10*) concluded that while retardation and misconduct were frequently associated, either might be a cause or a result of the other.

A similar conclusion was reached by Powell (*15*) from a study of 400 children who were retarded in reading, 200 of whom received remedial help and 200 matched cases who had received no help. Only 4 percent of those who received remedial work found their way to behavior classes, while 20 percent of the unhelped reached such classes.

Eckenrode (*4*), quoting other studies, summarized that the one outstanding characteristic of delinquents is their educational retardation which averages three years. Some years ago the Gluecks (*5*) pointed out that delinquents generally show incapacity in verbal symbols in a ratio of six to one.

In light of the above, the school clinical psychologist must consider the influence of a behavior problem in school attainment. A child whose feelings of inadequacy have their origins in the home may feel incapable of competition with his classmates, with the result that he falls behind. Many psychologists and psychiatrists have noted that some children are afraid to compete and even look upon successful competition as something undesirable. This seems to grow out of relationships in the home. On the other hand, for a child of superior abilities school may be so boring and unstimulating that he finds other nonschool outlets and neglects his school work. School psychologists often find very superior children in areas of lower social economic level, who work far below their capacity because they might lose status among the classmates if they were academically successful.

Inefficient *habits of work*, especially at the junior and senior high school or college levels are frequently a most significant reason for failure. Sumption and Philips (*17*) point out that poor habits of work are often the cause of poor school progress and reflect the lack of curriculum adjustment to the children's needs. Howell (*9*) further has shown that elementary school children seem to profit by emphasis on work-study skills more than do adolescents. Therefore it is important to remember that an aim of elementary education, as important as achievement in the tool subjects or mastery of content, is the formation of successful methods of study.

The School

Age at entering school may be a reason for overageness. The most usual age of entrance in the majority of school systems is six years. At least one system with which the author is acquainted adheres strictly to the rule that a child who will be six years old a week or two after the opening of school must wait until the second semester to enter. This means that he starts school retarded a semester. Some children in such circumstances find it impossible ever to make up the lost time. Other children, because their home is isolated and a long distance from school, because of illness, or because the parents do not want to send a small child a long distance to school, do not start until they are seven or more years old. Many of these children are never able to make up this initial retardation. Children who enter school at a very young age may also have difficulties. Keyes (*11*) says, "Practically one-half of all children who begin the first grade after reaching their seventh birthday, or before reaching their fifth, may be expected to lose a year at some time during the grammar school course." Pauley (*13*) confirms this finding several decades later, although he was primarily interested in advocating different legal entrance requirements to school for boys and girls.

This writer advocates a plan whereby each child before entering school has an evaluation of his intellectual, social, and emotional levels. With this information, a committee composed of the psychologist, the teacher, an administrator, and others would decide upon the educational program for the child. This should reduce failure in the early grades.

Changing schools, especially during term time, frequently has serious consequences. School is not merely a place where the child goes and absorbs a certain amount of knowledge; simultaneously with this activity he must learn to adjust to his classmates, the teachers, other children on the playground, teaching methods, and academic requirements of all sorts. These requirements are not simple for anyone, and perhaps less so for the young child. They take time; many children may require months, a semester, or a year to find themselves and their place. If in the course of his attempts to make an adjustment the child is transferred to another school, he may find himself forced to begin over again. The academic standards vary and different school systems, sometimes schools within the same system, are loath to accept the judgment of another school. Therefore, they "try" the child in a lower grade, or refuse to recognize a promotion when the transfer is made before the beginning of a new year. For some children this is all right; it may retard them, but they or their parents are not concerned. For other children, even one such unpleasant experience is discouraging. Multiply such an experience only two or three times, and one cannot help but sympathize with one of our cases who said, "What's the use? I don't try to do anything." This boy has been in the 1B grade three terms and the 1A twice, although his mental ability was slightly above average. In this two and a half years he had changed schools four times. He had been referred to our clinic by the school principal, who felt that he must be so retarded mentally that he should be sent to a special class. In the following case similar etiological factors resulted in poor skill in reading, and subsequent discouragement:

Case No. 9 (Blanchard, *2*). Ronald was referred for clinical study and treatment because of his daydreaming, absent-mindedness, and poor memory; also because he was failing in his work in the seventh grade at school. He was fifteen years old at the time of reference.

According to the social history, the family life was unusually wholesome. The father was dead, but the mother used excellent judgment in bringing up the two boys and in adjusting her relationship to them. The younger boy was thirteen years old, and also in the seventh grade. There was an unfortunate situation in the mother's conviction that Ronald was subnormal which reacted upon the boy. There had not been overt comparison of Ronald with his younger brother, but the boy could not help drawing comparisons for himself. The mother tried to console him by telling him that school marks did not mean everything, that the really important thing in life was to develop a good character; but in spite of her efforts Ronald often spoke of his lack of brains and his "dumbness."

Ronald's early school history was a story of continual failures and fresh beginnings, through circumstances that were beyond his control. He entered school at the age of seven. The family was then living in Los Angeles. He was ill much of the time during the first year. In the summer, they moved to New Orleans, and Ronald started the first grade all over again. His health was better, but in the middle of the school year they moved to Austin, Texas, and he was placed in the second grade there. The same spring, they moved back to New Orleans, and he was tried in the third grade. Thus, in his second year at school, he had to make adjustments to three different grades in two different school systems. He was unable to do the third-grade work; and when the family moved again, this time to Minneapolis, he was once more back in the second grade. This school year passed uneventfully, and he was promoted to the third grade in Minneapolis, but unfortunately, it became necessary for them to return to Austin. He was tried in the third grade there, but was soon demoted to the second grade.

These changes from one city to another were necessitated by the father's profession, but they confused and discouraged the boy. He disliked school and wept when he was compelled to go. His attitude toward attendance improved somewhat after the family moved to Philadelphia, where they remained after the father's death and where he was able to stay continuously in the same school. He then made regular progress until he reached the sixth grade, but he had to repeat that, and, as stated above, was failing the seventh grade at the time of his reference to the clinic. A group intelligence test administered to his class gave him an intelligence quotient of 75.

At the time of the psychological examination at the clinic, he was fifteen years, five months in life age. His mental age by the Stanford-Binet test was fourteen years, six months; intelligence quotient 94. (If fourteen were used as C.A., the I.Q. would be 104.) Reasoning, auditory-memory span, and concrete visual imagery were above average. On Series 1 of the Stenquist Mechanical-assembling test, he made a perfect score, a performance far above the highest norms for fifteen-year-old boys and ranking with the uppermost 1 percent of adult army men.

On educational tests, Ronald's achievement was very poor for both life age and mental ability. On the Otis classification test, the only subject in which he made a record satisfactory for his age and mental ability was arithmetic. He was particularly poor in spelling and English grammar, while geography and history were at least two years below his mental age.

On the Thorndike-McCall reading scale, his subject age was only eight years, eight months. That is, his reading proficiency was no better than that of the average pupil at the end of the third grade. Other tests confirmed this rating. On the Monroe silent-reading test, even on material adapted to grade three, his comprehension was only satisfactory for that grade. His oral reading, as measured by the Gray oral reading test, was also a poor third-grade performance.

Diagnostic tests revealed several parts of the reading process in which Ronald was strikingly deficient. His slow reading rate was the result of a short span of visual perception (he could take in only three syllables at a glance) and slow vocal-motor reactions. On the Thorndike vocabulary test, his score was only five when he was asked to read the words for himself, but when they were read to him, he doubled the score. His visual vocabulary was adequate for only fourth grade; his auditory vocabulary was satisfactory for eighth grade. Thus, poor visual-verbal recognition and an inadequate reading vocabulary were also a part of his reading disability. On the Trabue language-completion test, on which there was no time limit, his score was equivalent to the norms for thirteen years and for sixth grade. This showed that he was able to grasp meaningful material fairly well, and that his comprehension of what he read would probably be good if he could read more rapidly and if he had a larger visual-verbal vocabulary.

The physical examination was practically negative. Even with a special eye examination, only a slight hyperopia was found. In view of his difficulty with reading, however, glasses were recommended.

The psychiatric examination was revealing chiefly of his conviction of mental incapacity, his feeling of inferiority, his tendency of self-depreciation, and his abnormal degree of daydreaming.

In the light of these facts from the social, psychological, and psychiatric angles, it is easy to understand the difficulties for which Ronald was referred to the clinic. He appeared absent-minded in recitations because he could not read well enough to become familiar with the material discussed. He seemed to have a poor memory because of this same deficiency; he could not remember what he had not been able to read and comprehend. He had rated low on the group intelligence test given at school because he was unable to read rapidly and was therefore penalized by the time limit. The oral question-and-answer type of test (Stanford-Binet) which he was given at the clinic showed that he had average intelligence and a superior memory span. His daydreaming, in which he pictured himself as a great inventor, was the only way in which he could escape from the feeling of inferiority which the school failures, caused by his reading disability, had produced.

So far as the origin of the reading disability is concerned, it is probably safe to assume that it is found in the early experiences at school. He was called upon to adjust to the teaching methods in at least five different schools during the first three or four years. Moreover, the many demotions which he suffered as a result of these transfers must have given him a sense of failure that would almost inevitably condition his emotional responses. As we have said earlier, Gates has suggested that in such emotional conditions we may find the source of reading disabilities in many instances. His sense of failure and the feeling of inferiority were probably increased by the contrast to himself which he saw in the excellent school adjustment of his younger brother, who had started school at a more stable period of the family life.

Discovery of school-changing as a contributing factor in retardation can at least be made the basis for recommending irregular promotions and special attention. The difficulties for the child inherent in changing schools should suggest to school officials careful individual study as the best method of placing the transfers. But the school cannot be held totally responsible—changing schools means changing homes. An attempt should be made to show parents the advantages to the child of living in one community long enough for him to make some advance. Probably this stability is most desirable in the first four or five grades; after this, changing schools is not so potentially harmful.

Absence as a factor in retardation has long been recognized as important. Heck (*6*) has pointed out that many investigators have found this to be true. Absence seems to be greater in the early grades, with decreases until the secondary school, when it increases. Absence in the earlier grades may be a reason for failure in those grades, and it also may be an indirect cause of failure in subsequent grades because of lack of foundation in the tool subjects. The reason for absence may also be significant. Poor health not only may mean absence, but may also result in lessened ability to work when the child is in school. Home attitudes which may in themselves be detrimental are often reflected in the child's absences. In the higher grades truancy, especially among the older children, may suggest low ability and resultant dislike of school. The diagnostician must know not only the extent of absences, but also the reasons for them.

Other school conditions may be significant in explaining retardation. *Weak preparation* of the child in one grade may result in difficulty in a higher grade. Teachers' attitude may also be a factor. The author recalls one third-grade girl who was referred to him because of failure. Her attendance was 50 percent. Upon investigation it was found that she was afraid of her teacher whose class she attended for the first half of each day. When placed with another teacher, the child no longer was an attendance problem. A child may be handicapped by a reputation which has been communicated to a new teacher. The teachers' lunchroom is often a place for group diagnosis of a child.

The Home

The personality and behavior disorders that can be traced to the home may interfere with school work and result in sufficiently unsatisfactory work so that the child fails a grade and is thus retarded. Therefore the possible influence of behavior problems on school achievement discussed above depends indirectly but in large measure on home influence.

The cultural pattern in the home is often a determinant as to attitude toward education generally. Children who fail often come from the lower socioeconomic levels of our society. This often reflects an attitude of the parents who have not done well in school themselves and see no particular value to education in itself. In middle class society success in school is often rewarded in many ways, one of which is not so subtle. It has been often observed that children in the middle class receive a fixed sum of money for each superior mark. In the lower socioeconomic group a parent often does not know what grades his children are in and often is unacquainted with the marking system. Often these children of the lower socioeconomic group lose status with their peers if grades are too good.

Hollingshead (*8*) presents a fascinating picture of the place that socioeconomic and cultural factors play in success and failure of children and adolescents in school. Generally speaking, the lower the socioeconomic level, the lower the school grades, I.Q.'s, attendance, and age of leaving school, but of course, one could not generalize for any one representative of the five social class levels.

The difficulty of some *children who are bilingual* in school may be a function of class level as much as being a difficulty learning a new language, because generally people of recent foreign extraction are often at the bottom of the socioeconomic scale. Often an adaptation of curriculum for these children is effective.

There are many cases of poor school adjustment resulting from *low economic conditions* in the home because the parents are unable to supply books, necessary clothing, or healthful food and living conditions. It may be surprising for some to know that there are many children from very poor homes even in time of high employment. One family, until recently, lived in the hallway of a former mansion. The father had deserted, and the mother was ill. The two boys slept on army cots or in all-night theaters depending upon the temperature. They lacked proper food and often slept in school. Their achievement was far below their mental age. In cases of this sort the psychologist needs to know proper community resources to ameliorate such conditions.

In the following case of retardation the economic condition of the home was of decided significance, but it is a case in which social factors were also in operation.

Case No. 10. Fred, age ten years six months, was referred to the school psychologist because he was accomplishing nothing in the third grade. His behavior was annoying to both the teacher and the other children. He rarely had supplies or knew where his books were.

The principal had interviewed the mother and had told her of the boy's misdeeds and lack of success in school. Almost in desperation the child and his mother were referred to the psychologist. The interview with the mother in obtaining the family history helped to explain much of Fred's present difficulties. His own father had left the mother and this boy. For the past year the mother was receiving a form of public assistance, but because of her illness she was boarding the child with some neighbors. Fred had attempted to deliver papers, but was always behind in his collections.

The test results show that Fred had a mental age of eleven years six months, I.Q. 110. According to the examining physician there was no apparent physical basis for his retardation and behavior. The test results showed no special disability although he showed relative weakness in areas of visual imagery such as memory for designs. During the interview with the boy, he presented a willingness to perform and indicated that he wished that he could live with his mother and not the neighbors. The examiner was impressed by his pleasant ways if not pressured about things academic. He said that he liked his teacher in spite of her annoyance with him. He especially did not want to be sent to a special class for behavior problem boys.

The interview with the mother revealed that the Department of Health had refused her a health certificate to work as a waitress. The examiner referred her to the out-patient department of a nearby hospital. By examination the doctors found that a simple operation would make her eligible for her health certificate. The mother got a job as a waitress and was able to move to larger quarters and have Fred live with her. The psychologist recommended a promotion for Fred and within a year much of his undesirable behavior had disappeared and his academic work had greatly improved.

The parents' attitude toward the school may be significant. Constantly changing schools of which we have already spoken, is often caused by instability of the parents or the nature of the father's employment. In industrial centers families of rural origin often move back and forth. In some larger cities trailer camps present problems for children. In one surburban town with which the writer is acquainted there are four large trailer camps, which furnish a disproportionately high number of retarded children in school.

Sometimes the parental attitude may be difinitely and overly antagonistic to the school. One disturbed mother of a twelve-year-old boy who was in a special class for behavior problems took the attitude that the school was totally to blame. She would falsely accuse the school teachers of beating her boy. Even his behavior at home was blamed on the school. The school was not meeting the needs of the boy but neither was the home and it became impossible to work with the home.

MANAGEMENT

The study of children referred to the clinic because of retardation must be directed primarily to determining causes or reasons for poor work. Because low ability is so frequently a factor, the determination of mental test level is certainly a most important first step. In no case, except possibly for those who are unquestionably feeble-minded, should test performance be taken as a final reason. The relation between mental ability and school achievement should be determined. This should be done by comparing mental age with educational achievement test age or grade levels, remembering that probable error may account for part of the difference. In lieu of such tests, grade placement may be studied in light of the child's school history, age of entrance, absence record, promotion record, changes of schools, etc., and an estimate made of how satisfactorily he is placed in school. Here again if his grade placement is below that which might be expected from the history further reasons must be sought. The psychologist's task is to evaluate all the possible factors in the complex situation and form a conclusion as to the most probable causes.

In an individual case, such a conclusion may include a number of factors. Recommendations and follow-up relative to each should be made in order to correct any factor causing retardation. Recommendations for these cases will include, where pertinent and possible:

1. Correction of sensory defects.
2. Improvement in general physical condition.
3. Special attention by the school teacher, or remedial work in subjects (especially reading) in which difficulty is evidenced. This may mean that a tool subject should be literally begun over again.
4. Special arrangements for extra or irregular promotion or change of class in school.
5. Attendance at a special class for mentally handicapped.

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Chapter

6

Specific Disabilities in School Subjects

PSYCHOLOGICAL clinics have to deal not only with children presenting the problem of general retardation, but also with children presenting a retardation apparently limited to one or two subjects. A child who exhibits behavior of an intelligent sort may still be unable to learn to read, or to do arithmetic, or to spell, and so presents a baffling problem to teachers and parents. By attending to certain details, it is possible to teach many of such children reading, arithmetic, or any other subject in which they are deficient.

Our concern in this chapter will be with deficiencies in the tool subjects only: reading, arithmetic, spelling, and writing. Of course, equally serious and important problems may be presented by a deficiency in any content subject from the elementary school through college; but usually such difficulties are due to lack of interest, or to a lack in the facility with which tool subjects are used, or to defects in study habits.

If there is a wide discrepancy between achievement in one subject and that in *all* other subjects it will automatically eliminate lack of intelligence as a cause. When, however, the discrepancy is not so great, or when some degree of deficiency is evident in several subjects, then lack of intelligence may well be a contributing factor. The plausibility of this is indicated in the correlations between the tool subjects and intelligence. Approximate median correlations between intelligence and tool subject achievement as reported by a number of investigators are as follows:

This chapter was written by Harold F. Powell, Wayne State University.

Reading	0.60	Spelling	0.50
Arithmetic	0.55	Writing	0.10

We might justly conclude from these figures that a child may be very deficient in reading and somewhat so in arithmetic, but be average or satisfactory in spelling or writing. For reasons to be noted later, the converse is not necessarily true. Thus a child poor in spelling or writing might be excellent in arithmetic or reading. But his deficiency is evidently not due to lack of intelligence—in fact, it may be related to a superior intelligence.

There are very real reasons why poor achievement in the tool subjects should be investigated and corrected. Even cursory study of the modern curriculum will show how important reading and arithmetic, at least, are to achievement in all subjects. History, geography, civics, foreign languages, science, English, etc., all depend in an intimate way upon reading facility; and algebra, geometry, bookkeeping, and science are dependent upon arithmetical ability. Therefore we shall discuss these tool subjects, especially disabilities in them, from the point of view of diagnosis and, to some extent, correction.

Relations Between Language Abilities

Meumann (*31*) early pointed out a communality in the linguistic activities—reading, writing, spelling, and speech. Schneck (*47*), using a correlational technique, demonstrated a common verbal factor. The diagram in Figure 5 is an attempt to illustrate the relationships existing among the various language skills, especially in their developmental aspects.

The child's first association is usually between the sound of an object's (activity, relationship, etc.) name as spoken by another person and the object itself; then, proceeding clockwise around the diagram, he learns to say the name himself, to read it, and finally to write it. In the course of this sequence other associations are made as indicated by the double-headed arrows. The numbering of these bonds approximates the ordinary sequence of their establishment. However, the definiteness of this sequence must not be relied upon too strongly, for there are evident variations in individual cases, and often one or more associations are established more or less simultaneously. Specifically, these connections may be thought of as follows:

1. Association of the name, as spoken by someone else, and the object.

2. Association of the name, as spoken by self, and the object.

3. Association of the sound of the name and the kinesthetic cues in speaking the word. Auditory perception and vocal articulation abstracted from the object, *per se.*

The first three associations comprising the basis of spoken language are established early in the child's life, adequately in most children by the age of two years. Their genesis is related not so much to formal training as to the complex of interactions of the child with his familial and social environments.

4. Association of the written or printed name with the object.

5. Association of the written or printed name with vocal articulation, as in oral reading.

6. Association of the written or printed name with the sound as pronounced by self or others.

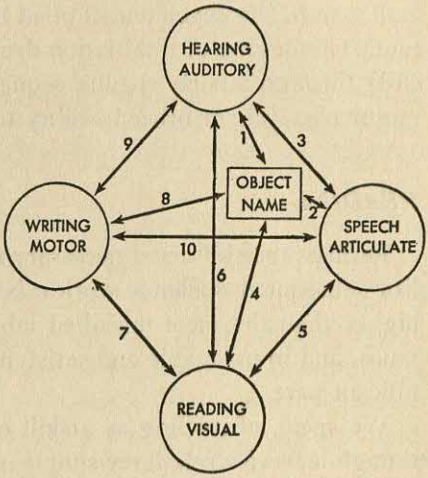

FIGURE 5. Relations of Language Abilities.

This second group of three associations forms the basis of reading ability. They are usually not well formed in children with an intelligence level much below six years. This means that for most children the formation of such associations takes place under formalized training, usually in the schoolroom.

7. Association of the printed or written word with the motor skills necessary to print or write it oneself. This may or may not involve spelling; e.g., Hollingworth (27) reports a boy who could not read or spell, but could recognize his name and could draw it as he would a house, although he could not spell it otherwise.

8. Association of the object with the motor performance necessary to write its name. This obviously involves spelling.

9. Association between the sound of the word and the motor act of writing it, as in writing or spelling from dictation.

10. Association between the auditory and kinesthetic perception in saying the word oneself and the motor act of writing it.

The last group of associations is probably the latest to be formed and usually follows, or only in part is simultaneous with, the development of reading skills. Writing as a language skill involves spelling; and except in the case of "spelling bees" or occasional requests like "How do you spell——?" this aspect of the language skill is always so associated.

It should be evident that if it is impossible to form any one of these associations the development of all the rest will be retarded to some extent. The degree of retardation decreases from that shown by the deaf child through a fairly regular sequence to the relatively slight effect of motor paralysis or other inability to write.

READING

Perhaps the skill most necessary for every child to achieve is reading. For subsequent academic work it is essential, for all types of occupation higher than the most unskilled labor it is of greater or lesser importance, and in profitable and satisfying use of leisure time it plays a significant part.

We speak of reading as a skill or ability to be secured in school as though it were a relatively simple unitary type of behavior. Quite to the contrary, it is psychologically very complex. Factors of a sensory, motor, perceptual, and intellectual nature are all involved. Usually two kinds of reading ability are distinguished: (1) mechanical, or the ability to pronounce words in the printed sequence with or without any expression in the reading, and (2) comprehension, or the ability to understand what is being read. The first of these may exist without the second, but under ordinary conditions the second presupposes facility in the first.

Reading mechanics require sensory, motor, and perceptual normality. Thus, visual defects obviously limit the degree of reading skill that can be secured. To a more limited degree, auditory defects may affect reading. Kinesthetic deficiencies play some part, especially in connection with vocal articulation or oral reading, and perhaps in connection with eye movements in silent reading. For the totally blind, cutaneous sensation of pressure will affect the development of skill in reading "by touch." Motor disabilities, in vocal articulation and eye movement especially, play a part in poor reading. Perceptual factors such as inadequate identification of letter or word forms, failure to perceive words or phrases as units, too frequent or irregular eye movements influencing perception span are all of importance in explaining specific cases of reading disability.

As we have pointed out, lack of intelligence will probably be evident in other ways, but it is of great importance in explaining deficiency in comprehension. This more complex aspect of reading skill is also affected by the amount of previous experience with words, with the subject matter, with vocabulary, or with the specific language being read. Also, poor reading mechanics exert an undesirable influence on the comprehension of what is being read, although it is sometimes found that superior children may pick out a good deal of the meaning of a passage, while exhibiting at the same time only fragmentary perception of the material.

In the preceding discussion we have indicated several possible factors in the etiology of reading disabilities. We shall discuss these factors in a somewhat more systematic and detailed fashion and then consider diagnostic measures related to them.

Intelligence

Correlations between intelligence as measured by individual or group tests and reading have been reported by a number of investigators. These correlations exhibit a wide range due in part to methods of measuring the two variables and in part to the size of the groups measured. Among 46 reported correlations, 25 were 0.60 or larger, and the modal group with 12 cases was the 0.60 to 0.69 decade; the median correlation was 0.60. We may take the median as being the most adequate indicator of the central tendency of the correlations found.

As mentioned, the correlations vary with the type of test used. Those based on group tests of intelligence were around 0.75, while those based on nonverbal tests were around 0.25. There is also some evidence that the correlations between mechanical aspects of reading, speed, etc., and intelligence are lower than those based on reading comprehension. In spite of variations caused by such factors, it is clear that deficient intelligence may frequently be at the basis of reading difficulties.

The minimum mental age required for learning to read is rather difficult to determine. Williams (*53*), summarizing research on beginning reading, concludes that many factors enter into reading readiness and that reading success cannot be guaranteed by a given mental age. Frequently the mentally handicapped develop a surprising facility in mechanical reading but lack adequate comprehension of what is read. This writer remembers a mentally retarded pupil with an I.Q. of 68 who read high school material, but his comprehension was about the third grade. He was often called upon to read for "visiting firemen."

Because of the obvious relation between intelligence and reading, the first step in studying a case presenting difficulty in reading should be the determination of intelligence. Any child whose ability is represented by a Binet I.Q. of below 80 will probably exhibit some degree of reading retardation. Although this should not lead the teacher to assume that it is useless to attempt improvement, she must be warned that the child's accomplishment will be low and his advance slow. However, some special attention and extra drill may well repay the effort expended.

Sensory Factors

Visual defects. Severe loss in visual acuity obviously makes impossible the development of reading skills in the ordinary sense. Other reading methods may, however, be substituted. Monroe (*34*) and others have reported that eye defects resulting in partial loss of acuity do not appear to be significant in causing reading disabilities. Joslin (*28*), comparing the reading achievement of visually normal children and of children having refractive errors, found that hyperopic vision decreased reading gains, and that children with myopic defects showed greater gains than normal children. From his review of research dealing with vision and reading this author found that hyperopia, astigmatism, and binocular incoördination were most frequently associated with reading disability.

Eye muscle imbalance appears to be significant. Eames (*12*) comparing 1000 children having reading disability, 500 ophthalmic children, and 150 unselected children, concluded that hyperopia and exophoria retarded word recognition. He also noted that I.Q.'s of 90 and below were more frequent among the poor readers. The serious effects of strabismus resulting from muscular imbalance in reading indicate the need for careful examination by a competent ophthalmologist.

Auditory defects. Loss of auditory acuity is probably not nearly so serious as loss of visual acuity. While hearing loss does have an effect on the development of speech and thus could affect oral reading, by itself it will not affect silent reading if suitable methods of teaching are used. Bond (*6*) found that when reading skills were taught to second- and third-grade children by a nonphonetic, look-and-say method, the children with and without hearing defects showed no difference in skill. However, when children taught by a phonetic method were compared, the group showing reading disability had a mean hearing loss of 15.8 percent, in contrast to the 8.4 percent loss in the control group. Training methods for children with a hearing loss should consist essentially in emphasizing the association between the object and its printed or written name directly, without the usual intervening step of the heard and spoken sound.

Fiedler (*14*) compared 1180 children in reading and other classroom problems. A significantly larger proportion of children with deficient hearing was reported by teachers to be classroom problems, although not usually recognized as hearing loss cases. Again this indicates that the psychologist should be aware of symptoms of possible auditory involvements and should refer to qualified specialists and hearing clinics.

Motor Defects

Eye movements. In reading, the eye moves from left to right, not by a steady sweeping motion, but in a series of very quick jerks interrupted by pauses. Figures 6 and 7, reproduced from Gray (*21*), illus-

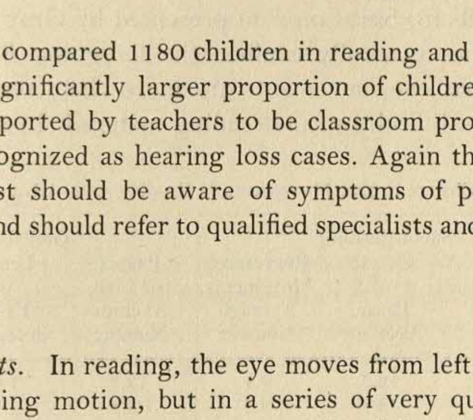
2 1 3 4 5
A portion of the Grecian host broke up camp and
1 2 3 4
set sail as if they were homeward bound; but, once
2 1 3 4 5
out of sight, they anchored their ships behind a

FIGURE 6. Eye Pauses of a Good Sixth-Grade Reader. (After Gray.)

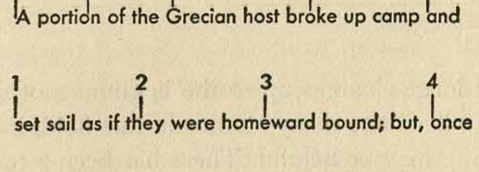
5 9 16 15
1 2 3 4 6 8 7 10 11 12 14 13
set sail as if they were homeward bound; but, once
1 4 8
2 3 5 7 6 9 10 11 13 14 12 15
out of sight, they anchored their ships behind a

FIGURE 7. Eye Pauses of a Poor Sixth-Grade Reader. (After Gray.)

trate the difference in eye movements shown by a good and by a poor reader. Gates (*19*) found that eye movements were secondary to defects, rather than defects being caused by poor eye movements. Increased speed and facility in reading would require fewer and shorter pauses, with fewer movements back toward the left of the line. We should expect to find improvement in these ways as children advance in school and therefore have higher reading ability. Just this sort of improvement is shown in Table 16, based on data presented by Gray (*21*).

Later researches generally confirm the foregoing findings. Morse (*37*) suggests that eye movements are more characteristic of the individual than the difficulty of the reading material. In the same study, Ballantine found large changes up to the beginning of the tenth grade. Tinker (*50*), who has done many studies in this field, indicates that eye movement training may be helpful. There has been a tendency to overemphasize the mechanics of reading process. One may conclude that inefficient eye movements may be improved but such efforts alone will seldom correct the difficulty.

TABLE 16. Change in Eye Movements in Reading with Advance in Grade

Grade	Silent Reading			Oral Reading		
	Pauses per Line, Average Number	Length of Pause, Average[a]	Regressive Movements, Average Number	Pauses per Line, Average Number	Length of Pause, Average[a]	Regressive Movements, Average Number
4	9.1	12.5	2.1	13.3	14.4	3.5
5	10.0	13.8	3.5	9.3	13.7	3.9
6	7.5	12.5	3.1	9.0	13.0	5.4
7	7.8	13.6	3.5	10.6	13.1	4.2
H.S.	6.4	11.5	2.5	7.8	12.8	3.7
C.	6.9	11.3	2.6	8.8	12.9	3.4

[a] Time units are fiftieths of a second.

Speech Defects

As we said when considering auditory acuity, inability to hear a word interferes with learning its pronunciation; and this in turn may affect the development of reading, especially of oral reading. Although such defects may be important of an individual case, Hildreth (*25*) points out that it is the speech defect in conjunction with some other factor rather than the speech defect alone that accounts for retardation in reading.

Artley (*3*) concludes from twenty-two studies that there appears to be a relationship between speech defects and both oral and silent reading ability, although the causal relationship is not clear.

Perception

There was a time that such words as congenital word blindness, alexia, or dyslexia were used to describe apparent inability to perceive relationships between the printed word and its sound and its meaning. These words may be considered merely descriptive, hardly indicating causal relationships. There is still a tendency in some areas to label disabilities as congenital, hereditary, or idiopathic, which should be translated as "cause unknown."

Inadequate perceptions. Perception may be defined as an interpretive interaction with a stimulus function. Stimulus functions are not, however, necessary and characteristic attributes of objects. Rather their connection with objects is a result of training and experience. For illustration let us take the simple three-letter word "tap" as a stimulus object. For the Chinese ignorant of the Roman alphabet, perception is limited to black marks on white paper in a certain shape. With knowledge only of the Roman alphabet, but with none about any language using it, the perception might be of the individual letters "t," "a," and "p," plus possibly an interpretation that in this configuration they make a word. Present this same stimulus object to different American children and one soon finds that many stimulus functions may be present. A child who is learning to read and who has just learned to experiment with new letter combinations may first analyze it into letters; perhaps more or less accurate attempts to pronounce it are made, and soon this object is reacted to, i.e., perceived, as one of those many objects that may be pronounced—this particular one in the fashion t ă p. At this stage there may be no other stimulus function in the word object for this child. With increasing experience, when the object is met in various contexts and so on, one, two, or more further stimulus functions inhere in the stimulus object "tap," and perception of one of these will depend upon the stimulus situation. Thus meanings are stimulus functions of words. For different people, or for the same person at different times, this simple stimulus object "tap" may mean and be reacted to as meaning: a slight blow, to strike such a blow, a faucet or spigot, a nut for a bolt, shoe-sole repair, a barroom, a branch of an electric circuit, to make such a branch, to lead away or draw off, to open a means of drawing off, a tool for cutting threads, a form of dance, to Yale men the ceremony of selecting for the senior societies, and perhaps further meanings in more provincial uses.

This apparent digression is actually in point because it introduces a serious cause of reading difficulties both in the mechanics and, perhaps more serious, in the comprehension of reading. To perceive a word as anything other than merely black marks requires learning. For the two-year-old no word has a stimulus function distinct from that shown by any similar contrast of black and white, or other color combination. Even the interaction with a word as a word must be learned. The lack of such learning appears to be really basic to the condition we have just described as congenital word blindness.

While we cannot enter into an explanation of methods of teaching reading, we may point out that two extreme methods have been used. The earlier extreme was the strictly analytic method of teaching first the alphabet, then spelling, and proceeding thence to reading words as units. The other extreme disregarded any analysis and taught reading by whole-word perception. Neither method is completely good or completely bad. Modern methods maintain and teach that basic words should be learned as units with not too much attention to analysis, but that analyzing is necessary for the child in coping with new words that appear in his reading. Thus, perceptual confusion is fairly easy between pairs of words such as "made" and "mad," "saw" and "was," "the" and "they"; but analytic attention to the difference between these words when the child is first introduced to them reduces the possibility of such confusion. On the other hand, perceptual confusion between "boy" and "pachyderm" is hardly to be expected; but analysis into syllables, at least, makes possible a fairer conception of the latter word.

Renshaw has reported preliminary studies of the effect of tachistoscopic training on the reading speed (*42*) and reading achievement of first-grade children (*43*). In the former study two different groups of adults increased their mean percentile score on the college freshman norms of the Robinson-Hall Silent Reading Test 26 points for speed and 33 points for comprehension. The latter study, which reports the results of the trial experiment with first-grade children, gives suggestive evidence that a training program in tachistoscopic visual perception will appreciably improve reading achievement. These studies suggest that training in visual perception not specifically limited to words may be of importance in both learning to read and in improving reading disabilities.

Personal Adjustment

Only in recent years have there been significant studies in the area of the relationship of personal and social adjustment to reading retardation. Raines and Tait (*41*) reviewed nine research studies having to do with emotional factors in reading and concluded that reading retardation is a symptom of emotional illness of the individual. Similar findings were reported by Missildine (*32*) and Witty (*55*).

Zolkos (*57*), Russell (*46*), and Robinson (*45*) point out that intense emotional strain and reading disability seem to interact, although there is need for further research of the positive relationship between reading achievement and personality adjustment.

Blanchard (*5*) suggests that emotional disturbances result from reading disability in four out of five cases, while one of the five has an emotional base. This difference in etiology will not be apparent by the use of an intelligence test alone but other techniques such as the projective tests may be helpful. The diagnostician will find it necessary to refer a child with an emotional based reading disability to a visiting teacher or social worker for treatment before effective remedial education will result. Often a child will be antagonistic toward his parent and transfer this antagonism to the teacher, thereby resulting in retarded reading. Parents who became very much disturbed by their child's difficulty in reading cause further anxiety in the child and prevent progress. Furthermore, traumatic experiences near the beginning reading stage will often result in inability to read. Psychologists have noted that trauma often results in regression to a lower developmental level.

One case is a girl of high school age who was referred by an employment agency because she could not fill out the necessary forms. A battery comprised of nonverbal tests revealed no significant disabilities. The evidence showed a very attractive girl who seemed quite socialized and who had been to school but lived in a community with no specialized school services. Further interviews with the girl and her parents revealed that she had begun to read in the first grade. At about this time she accidently set fire to her hair playing with matches. The experiences of the fire and the subsequent severe punishment were very traumatic and were followed by a regression from reading. After several months of interviews with the psychiatric social worker and with special reading instruction she was reading newspapers with ease.

Training

The following list of ten factors, while not always mutually exclusive, includes those sufficiently important to warrant special attention in diagnosis.

1. *Inadequate training in visual perception of words.* The child may spend too much time spelling or otherwise analyzing words, and so lose the meaning of the whole context. On the other hand, too facile whole-word perception may result in his searching new material for familiar words and neglecting the unfamiliar ones (*19*). Also to be considered here is an inefficient perception span, i.e., not sufficient material perceived at each pause in the eye movement across the line. Gray (*21*) points out that both reading rate and comprehension are positively correlated with the length of the span of perception.

2. *Inadequate training in perceiving details.* Some use of phonics seem to be warranted because its use refines word perception. However, phonic training which places correct pronunciation above clear understanding leads only to superficial exactitude. Such methods may result in the child's paying too much attention to detail and therefore developing narrow perceptual spans because of attention to such details.

3. *Methods and materials of instruction.* This includes the inappropriate methods mentioned above, as well as certain aspects of some of the following points. The ordinary classroom methods successful with the majority of students may be entirely unsuccessful with individual cases, but in the pressure of work no special methods are tried. In some cases reading disability may date to an attempt to teach the child from material that was too difficult, and because of this, a lack of interest or antagonism may have arisen. While it is possible that teaching methods and materials may be important etiological factors in some cases, they are probably of greatest importance in relation to the teacher.

4. *Teacher's ability and influence.* Evidently the preceding three factors are wholly or in part dependent upon the teacher's training for and ability in teaching reading. Taylor (*49*) concludes, from a study of the reading achievement of children during single terms from the 4B to 8A grades, that the teacher's ability shows no effect in a single term. He

also points out that in the ordinary course of events a child experiences several types of teachers during several terms. This would suggest that the influence of an individual teacher is negligible. Even granting that this one study will be substantiated by other researches, it is evident that by the fourth grade most children have formed the all-important early habits. The crucial time when the teacher probably plays an extremely important part is in the first and second grades during the child's first introduction to this new process of reading.

5. *School attendance.* Regularity of school attendance apparently has no direct causal relation to reading achievement. Clifton (*11*) found that achievement loss was more highly correlated to lower intelligence than to school attendance. The loss was least in the high intelligence group. However true these findings may be for groups, there can be no question that absence may be symptomatic of difficulty in individual cases. Changing schools may be serious, not only because it introduces problems of social adjustment but it may mean change of teaching methods to which the child may have difficulty in adapting.

6. *Unfavorable reading experience at home.* Troubles may arise from the child's reading experiences in the home. For example, parents anticipate the formal teaching of the school and attempt to teach the child some fundamentals of reading at home. If they are adequately trained, there can be no objection to this. There is probably no serious objection if, even by unorthodox methods, the child has built adequate preliminary reading habits before entering school. But as relatively few parents, even those who may be otherwise well educated, have adequate training, the usual outcome of such attempts is confusion when the child starts school. The result is either the necessity of practically relearning the process or the development of a reading disability.

In contrast to this active interest in teaching the child to read is the failure of any stimulus toward a reading interest. With the latter the school would have a free hand to develop reading interests and skills but any first grade teacher is happy to receive a child motivated to read.

7. *Unfavorable home conditions.* Poor socioeconomic background of a child usually means limited experiences as a foundation for reading readiness. One school in which the writer taught had many children who had never been out of their own immediate neighborhood. Often in these homes there is a lack of stimulation and an antagonism toward reading. In one of our clinic cases the father was actively hostile toward the

school, reminding the psychologist that he had had no schooling and was doing well economically.

8. *Foreign language.* The personal experiences of many readers of this book will indicate to them the difficulties that the child must have who is forced to think in a strange language, or who must use one language at home and another at school. This problem requires ingenuity on the part of the teacher to provide reading material of the appropriate reading level as well as fitting the experience level. These bilingual children who may start slowly should be promoted to the proper grade placement as they gain reading skill in English. Sheldon and Cutts (*48*), however, reported that there appeared to be no correlation between bilingualism and reading status.

9. *Amount of reading and interest in reading.* Each of these would seem to be the criterion of the other; i.e., the child who reads a good deal is evidently interested in reading, and vice versa, the child who is interested in reading will read a good deal. Mitchell (*33*) found that extensive leisure-time reading seems to be a factor in social acceptability of sixth-grade children. Wollner (*56*) concluded that the factors in voluntary reading of an individual are complex, and therefore broad generalizations about reading may not be possible. It is readily seen that reading disability will cause lower achievement in those academic areas depending upon reading.

10. *Vocabulary.* Wide reading increases the vocabulary, but, in turn, a large vocabulary makes possible the wide reading. Even for the small child first learning to read, the major problem is that of increasing the number of words to which he can react. Therefore, all the things which hinder the development of visual perceptual habits in reading also tend to limit vocabulary. Monroe's controls (*34*) had better vocabularies than her children with reading disability, although the lack was more likely a result of the disability than a cause of it.

Diagnosis

The preceding review of causative factors in reading disability suggests information useful for diagnosis. Gates (*18*) has discussed problems and methods of diagnosis most thoroughly. In an earlier edition of his book (*17*) an outline of the diagnostic scheme briefly indicates the various factors to which attention should be directed.

- I. Tests and diagnosis of reading attainments:
  - 1. Word recognition
  - 2. Sentence reading
  - 3. Silent paragraph reading—various types examined separately for
    - a. Speed
    - b. Accuracy
    - c. Level or power
  - 4. Oral reading
- II. Techniques of reading context:
  - 1. Objective devices and observation of use of context clues, word-form clues, phonetic devices, etc., in oral reading
- III. Techniques of working out recognition and pronunciation of isolated words:
  - 1. Objective records and observations of methods of attack upon unfamiliar words
- IV. Perceptual orientation and directional habits in reading context and isolated words:
  - 1. Objective records and observations of reversal tendencies, omissions of words, failures to observe various parts of words, dependence on general configuration, etc.
- V. Inventory of visual perception techniques. Tests or examinations for:
  - 1. Ability to work out phonogram combinations
  - 2. Recognition of various types of word elements, as
    - a. Initial-vowel syllables
    - b. Initial-consonant syllables
    - c. Vowel-consonant phonograms
    - d. Vowel phonograms
    - e. Consonant-vowel phonograms
  - 3. Ability to blend given letters and phonograms into words
  - 4. Ability to sound individual vowels
  - 5. Ability to name individual letters
- VI. Inventory of auditory perception techniques; tests or examinations for:
  - 1. Ability to spell spoken words and techniques used
  - 2. Ability to write words as spelled
  - 3. Ability to blend letter sounds into words
  - 4. Ability to name letters when sound is given
  - 5. Ability to give words with a prescribed initial sound
  - 6. Ability to give words with a prescribed final sound
- VII. Various constitutional and psychological factors:
  - 1. Visual perception: Speed and accuracy of visual recognition and discrimination of various materials

2. Vision: Tests of visual acuity, eye dominance, muscular coördination, etc.
3. Auditory acuity and discrimination
4. General intelligence
5. Memory span
6. Associative learning
7. Muscular coördination, handedness, relation of dominant eye and dominant hand, etc.
8. Emotional stability, etc.

VIII. Educational background and environmental influences:
1. Home conditions; language spoken, attitude toward reading difficulty, etc.
2. School conditions; educational progress; methods of teaching, etc.
3. Personal relationships: child-parent, parent-teacher, teacher-child; pupil's attitude toward school and reading; brothers and sisters, etc.

IX. Motivation: Reading viewed in its relation to desires, thwartings, purposes[1]

The first six categories in this outline are concerned with the diagnostic analysis of reading itself. Sections VII to IX contain items that are actually parts of a general psychoclinical examination. To these should be added evidence of the child's general health, and his educational history including absence and change of schools and teachers, especially as these are related to his learning to read.

Since we have already considered general examination methods at some length, it is not necessary to discuss each of these methods in detail. Intelligence will be determined by tests; but too much dependence cannot be placed on verbal tests because performance may be affected by the reading disability. Perception should be investigated for word recognition and perception span.

The physical examination should be made by a physician, and the visual examination by an oculist or ophthalmologist. The visual examination must include at least investigation of acuity, refractive errors, and eye muscle imbalance. In some special cases an auditory examination as well as a neurological study may be indicated.

A complete educational history must be secured. The relation between achievement in reading and in other subjects may be significant. The age of starting school, especially when viewed in the light of the child's M.A., may help to explain lack of success in primary reading. A child with an I.Q. of 80 to 90 who begins school at the age of six is not yet able to profit much from reading instruction, and in such circumstances he may be promoted without adequate groundwork. A history of extreme absence, of frequent changing of schools or methods, may help to explain the child's present difficulty. The history of the child's reading experiences should include the methods used to teach him, and his own interest in reading.

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[1] From A. I. Gates, *The Improvement of Reading*, Macmillan, 1935. By permission of the Macmillan Company, publishers.

The family history should include besides the developmental history, some evidence of the socioeconomic position especially as it may relate to the opportunities for stimulation of reading at home. Parental attitudes toward the child's reading may show indifference or a negative interest shown by attempts to keep the child from reading. A parent who works with his child who has a reading disability is rarely successful and more often adds another negative factor because of the additional pressure. On the other hand, positive parental attitudes are manifest where there is a wholesome stimulation of his interest to read himself or in buying of books. Information in the use of foreign language in the home is of course important.

The information secured from an examination covering all the above points enables the clinician to discover possible etiological factors and, therefore, corrective measures which are not directed toward the reading itself. Remedial training requires further knowledge concerning the exact nature of the reading difficulty; this may be secured by a specific reading examination. For such examinations informal tests or formal standardized tests may be used. The survey type of achievement test is of little use for diagnosing specific disabilities because it is intended to indicate only a level of achievement.

Remedial Treatment

If diagnostic study of a case of reading disability indicates physical or intellectual defects, these must be corrected if possible. As we yet know of no way to correct an intellectual defect in such cases, the psychoclinician's recommendation must be limited to pointing out the probable amount of achievement to be expected, and perhaps making suggestions concerning the training.

In cases where uncorrectable physical or mental defects are not present, remedial treatment may be undertaken with reasonable assurance of improvement. The teaching techniques to be employed are those used for teaching reading under any circumstances. However, the teacher's attention should be directed primarily to the specific difficulties indicated by the examination, e.g., word recognition, paragraph comprehension, and so on.

As children who have not learned to read often show discouragement and lack of interest in reading, the teacher's first task is to develop in the child a desire to learn reading. Gates suggests as means to this end that the materials used be easy and intrinsically interesting, that encouragement be freely given, that the child know about and follow an objective record of his own improvement, that the remedial lesson be given at a time that will not arouse antagonism (e.g., it should not be given after school hours), and that the necessary practice and drill be so distributed that it does not become dull and boresome. The type of material to be used in remedial cases, especially with older children, must be carefully selected. To ask the child in the fifth grade to use a first or second reader may well be embarrassing to him, and will certainly be uninteresting. Rather than formal readers, books of simple yet interesting stories should be selected. In short, patient sympathy and ingenious stimulation on the part of the teacher will solve many of the problems.

No description of the available teaching techniques and materials can be given here. In most cases the classroom teacher who is properly trained can adequately handle the special work with the child. Teachers or others who undertake this type of remedial work should read carefully some of the published case material as well as text discussion of the problem. Gates' book (*18*), already referred to, is the most useful manual on the diagnosis and treatment of reading disabilities.

SPELLING

When one considers the absurdities of English orthography it is not at all remarkable that many children exhibit a lack of achievement equivalent to a serious disability. It is not infrequent to find successful adults having difficulty with spelling. Bronner (7) minimized the seriousness of spelling difficulties when she said, "It is quite generally recognized that individuals differ widely in their ability to master this subject [spelling]. All writers on the question have agreed that many persons well educated are unable to spell correctly." However, the close relation between spelling and the mechanics of reading on the one hand, and writing on the other, makes necessary an adequate ability in this subject. We do no violence to the facts when we say that because the rules of spelling are so loaded with exceptions it is probably easier and more economical to master spelling by memorizing each individual word. This is not so impossible a task as may at first appear because the majority of words in ordinary use in correspondence, newspapers, magazines, fiction, and such widely read material are repeated so often that a relatively short list forms the average adult's working vocabulary.

This has been shown in a number of studies. Fitzgerald (*15*) studied the results of investigations of child letter writing, composition, and adult letter writing. He developed a list of 2650 words for a basic life vocabulary which is further broken down into (1) a core of 449 words for beginners and retarded, (2) a second core useful in child and adult writing, and (3) a list of 473 derivatives formed by adding "s," "d," "ed," or "ing" to base words. Rinsland (*44*) developed a vocabulary basic for elementary school children. A recent series of spelling textbooks based on Rinsland has been published. The modern spelling list for schools consists of three or four thousand of the most common words instead of the ten or twelve thousand words picked by random sampling from a dictionary that made up the older spelling books.

Causes

Because of the widespread difficulties with spelling found among children and adults alike, it is difficult to decide what shall be considered a special disability in this subject. For practical purposes we may define a specific disability in spelling as an apparent inability to learn the spelling of words that are among the two or three thousand most frequently used. Usually, but not always, this disability is accompanied by difficulties in reading.

The material upon which the vocabulary studies mentioned earlier are based were uniformly written or printed. This was entirely reasonable, because spelling as ordinarily needed and used is in writing activity. Therefore, in considering spelling as a skill we must consider it as involving association between visual or auditory perception and the motor acts involved in writing. This gives us the basis for most spelling difficulties, because, apart from low intelligence level, the more serious difficulties are related to sensory or motor defects.

Intelligence

Correlations between intelligence test scores and spelling ability have been less frequently reported than those for reading ability. The range of 32 such correlations is between 0.08 and 0.85, with the distribution showing no distinct mode, but with a median and mean at 0.51 and 0.49 respectively. A correlation of 0.50 would seem to represent the relationship fairly.

Evidently there is a greater variability in these correlations than in those reported for reading. However, there can be no doubt that spelling is not so closely related to intelligence as is reading—this in spite of the fact that reading and spelling are both parts of general language ability. But as we have pointed out, spelling is perhaps more closely related to the mechanics of reading, and this in turn is less closely related to intelligence than reading comprehension. The low correlation here reported is probably due in large measure to the nature of the process necessary in learning spelling. Learning to spell requires, all other things being equal, drill and repeated drill on nearly every word. Just this sort of mechanical drill appears to be suitable for children with low intelligence; therefore they may show a high achievement. On the other hand, the superior child is apt not to be willing to spend a great deal of time in drill, but attempts to generalize from past experience, with the result that he makes errors and thus reduces achievement. Direct support for a thesis such as this is found in a study, by Carroll (*10*), of the errors in spelling made by experimental groups of bright and dull children. He found that the bright children made a higher percentage of one-letter errors, and the dull children made a higher percentage of group errors. Furthermore, the bright children were more likely to spell words phonetically. Carroll concluded that the "psychological explanation of each of these differences appears to be in the marked superiority of the bright over the dull in phonetic generalization ability." In spite of the apparent disproportionately high achievement of the duller child, and the disproportionately low achievement of the brighter child, low intelligence must always be eliminated as a factor in spelling difficulties in the course of clinical study.

Visual Defects

Visual defects play the same part here as they do in reading; in fact, the child whose reading is poor because of diplopia, loss of acuity, or unsatisfactory visual perception will inevitably have difficulty with spelling, at least so far as he must learn the letter sequences from the written or printed word. However, since spelling is more usually based on auditory perception, vision is not of so great importance as it is in reading. Aaron (*1*) found that visual or structural analysis of words was an important predictor of spelling success although second to the spelling of phonetic syllables.

Auditory Defects

As spelling in the classroom is usually a matter of writing from dictation, the necessity for a normal auditory mechanism is evident. Of course the child's usual introduction of the spelling of a word is through copying it from a book or the blackboard. As a rule, this method is used for the most common words and before spelling is presented as an independent subject. While English orthography is not phonetic, the associations emphasized are those between the sound of the word and the motor act of writing it. Even when copying from printed material the child pronounces words to himself. This being true, there are three ways in which difficulties may arise. First, the teacher may mispronounce a word or pronounce it with a regional accent; the child spells as he hears it. Second, an auditory loss results in the child's not hearing the sounds clearly, but spelling as he hears them. Third, as a result of the first two the child learns the incorrect pronunciation, and later when writing spontaneously he spells according to this incorrect pronunciation. Kay (*29*) has demonstrated improvement in spelling following a program of teaching correct pronunciation. Clinical examination must include efforts to discover possible auditory defects and erroneous pronunciation.

Motor Defects

Defects in vocal articulation, writing coördination, and eye movements may be conveniently mentioned here.

The child with an articulatory speech difficulty will pronounce words incorrectly. This situation is analogous to the case of the child who has learned an incorrect pronunciation, and the result in spelling may be the same.

Inasmuch as spelling is predominantly used in writing, it is evident that the child must have adequate writing habits. Lack of these may be due to an organic condition such as spasticity or athetosis, or to inadequately developed motor habits. In the latter case the difficulty can, of course, be corrected by further practice.

That eye movements may be significant in spelling as they are in reading is suggested by Gilbert's study (*20*). Among adults and high-school and elementary-school students, this investigator found that poor spellers made more fixations than good spellers, and that the duration of fixations were longer.

Memory

One behavioral characteristic that develops with age and is apparently not much increased by training, yet is of the greatest importance in all memorization, has been called memory span. This span is defined as the largest number of letters, figures, or simple sounds that can be correctly repeated after only one hearing. The growth of this ability may be indicated by the digits-forward tests from the Stanford-Binet, where the arrangement is as follows:

Digits	Year Group	Digits	Year Group
2	II–6	6	X
3	III	7	XIV
4	IV–6	8	Superior Adult II
5	VII	9	Superior Adult III

Other things being equal, the longer the memory span, the fewer the repetitions required to memorize a long series. Thus the learning of a series of eight nonsense syllables will require fewer repetitions for a person with a memory span of six than for one with a span of only four. Inasmuch as spelling may, for some children, be equivalent to learning nonsense syllables, the factor of memory span is important. However, memory span and ease of memorizing are both greater with meaningful material. This indicates the value of the child's knowing something about the word before or simultaneous with his attempts to learn its spelling.

Habit Interferences

Habits, no matter how well learned, may be interrupted, inhibited, or disorganized under certain conditions. In the case of spelling habits, one such interference may come from earlier habits built up in learning the spelling of a foreign language. Although this may be infrequent, it indicates the need of learning something about foreign-language experiences that the child has had. Another common source of disturbance is sometimes found in emotional or affective states. For example, being required to spell at the blackboard, in an examination, in a contest, or under direct scrutiny may introduce emotional tensions in some children that will interfere with their successful spelling unless the habits have been very strongly formed.

Another frequent condition is inability to spell a word aloud upon demand but perfect assurance in writing it correctly. Obviously the difficulty here is that stronger associations have been made with writing movements than with vocalization of the letter sequence.

Lapses and Idiosyncrasies

Hollingworth (*27*) calls attention to these types of minor errors. Lapses comprise those frequent mistakes of omitting or adding a letter, made even by good spellers, which are immediately recognized as errors when pointed out. Idiosyncrasies are similar to lapses, and occur consistently in the spelling of some individuals who do not recognize them as errors. These mistakes can be corrected by simple retraining.

Emotional Factors

Learning to spell may become a boresome drill to some children. Very intelligent children and those with emotional problems may be unwilling or unable to apply themselves to the required drill. Bright children may be stimulated by studying phonetic rules. The cause of spelling disability of an emotional etiology must be determined and appropriate training be instituted.

Diagnosis

Diagnostic examination of children who exhibit spelling disabilities should be directed to the discovery of causative factors. This requires examination of intelligence, vision, audition, and visual perception as for reading. The child's general stability of behavior and the methods of teaching him spelling are important.

Horn (*35*) points out that many children can spell words on a spelling list before study. They make progress by using the dictionary, in proofreading, and in associating sounds with letters. There is no question but that motivation and interest are necessary to good spelling. The teacher's attitude toward spelling may be a factor. The use of standardized scales as found in batteries of achievement tests will serve the purpose of indicating the degree of achievement as well as words or type of words misspelled. Some useful ones are the Metropolitan Achievement Tests (*2*) and the Stanford Achievement Test (*30*).

Watson (*52*), in an experimental study of the psychology and pedagogy of spelling, has outlined a diagnostic classification of poor spelling habits. The five groups specified are those relating to: (1) syllabication, the pattern, differentiation and phonic values of syllables; (2) the establishment of new spellings, that is, the formation of basic associations between sound, spelling, and printed appearance; (3) the transference to new words of learned spellings of common elements, which requires knowing the possible spellings of sound units and the use of certain sound rules in forming words, e.g., doubling the final consonant before a suffix; (4) illegible handwriting; (5) motor acts resulting in lapses or idiosyncratic errors. Miss Watson advises that samples of the child's spelling be secured from themes and letters, or by use of a spelling list, and the errors present be classified according to her scheme.

As a supplement to errors found in written compositions and letters, Miss Watson has compiled the following list of words for diagnostic use in the seventh to twelfth grades. These words are to be dictated to the class, and misspelled words checked. No norms have been established, for the purpose of the list is not to measure achievement but to indicate the type of spelling errors which the child shows. In a personal conference the examiner checks over the misspelled words to discover whether oral spellings are also incorrect, whether the pronunciation is incorrect, or other possible reasons for the errors. This diagnostic list is obviously of value.

Remedial Treatment

The psychologist, having determined the possible cause for spelling deficiency, must recommend the necessary physical corrections and if emotional factors seem to be of importance, outline a program for parents and school aimed at reducing the instability. Also suggestions may be made for using teaching methods suited to the intelligence and

Dictation List for Use in Diagnosis

1. achievement
2. boyish
3. accompanied
4. ceiling
5. advancement
6. educator
7. cameos
8. cargoes
9. changeable
10. beginning
11. performance
12. gossiping
13. believing
14. conference
15. transmitting
16. conceited
17. noticeable
18. attractiveness
19. buyer
20. cuckoos
21. boundaries
22. advisable
23. compelled
24. darkening
25. besiege
26. differed
27. serviceable
28. engagement
29. lovable
30. conceive
31. delayed
32. dominoes
33. cleanliness
34. commended
35. flattering
36. chieftain
37. echoes
38. daintiness
39. deceit
40. displayed
41. embryos
42. hopeful
43. deferred
44. measurable
45. reference
46. fiendishness
47. employer
48. portfolios
49. immediately
50. forbidden
51. deceitful
52. dutiful
53. heroes
54. movable
55. signaling
56. deceive
57. earliest
58. weakening
59. notable
60. mosquitoes
61. fiercely
62. enjoyable
63. occurrence
64. management
65. radios
66. grievance
67. perceive
68. enjoyment
69. easily
70. ratios
71. Negroes
72. movement
73. obliging
74. preferred
75. happening
76. marvelous
77. regrettable
78. troublesome
79. requirements
80. peaceful
81. potatoes
82. scenarios
83. funniest
84. volcanoes
85. handkerchief
86. joyful
87. tomatoes
88. player
89. loveliness
90. merciful
91. volleyed
92. trios
93. mischievous
94. torpedoes
95. receive
96. studios
97. priestly
98. shampoos
99. receiving
100. perceived

temperament of the particular child. Thus, for the bright child, attention to phonetic rules and their exceptions may be more successful than mechanical drill. For the unstable child smaller units of work and less formalized drill may be suitable. In general, the following suggestions may be useful:

1. Correct pronunciation of the word by teacher and pupil is of primary importance.
2. Correct visual perception is important; in fact, Gilbert (*20*) says that correct perceptual analysis is characteristic of good spellers and can be improved in poorer spellers.
3. Knowing the meaning of the word being spelled is an advantage.
4. Longer words should be carefully pronounced by syllables although some words may be better left without too much emphasis on syllables.
5. Emphasis should always be placed on writing the word rather than on reading the letter sequence.
6. The amount of repetition necessary to learn will vary for different children and for different words. Learning to the point of being able to write the word correctly once is not enough. Adequate learning is shown by ability to write the word correctly several times in succession and also after an interval of at least several hours.
7. Time need not be spent on words completely memorized. Occasional reviews are helpful, but more time should be spent on learning difficult and doubtful words.

HANDWRITING

In Figure 5, handwriting is shown to be intimately bound up with the whole complex of language activities. This association is accounted for by the fact that writing is used primarily to record letters, words, and digits on paper. Although the same type of arm movements are used in writing and drawing, our present concern is with the motor habits necessary for the adequate formation of letters.

Standards of writing are described in terms of speed and quality. The first is measured by the number of letters written per minute when the task is the repeated writing of a well-learned sentence for a period of two minutes. The second is measured by comparing the sample with a scale of handwriting quality such as that of Ayres (*4*). The first of these measures is simple and objective. The second requires a subjective judgment on the part of the examiner, for the scale is composed of samples of writing with which few of the samples to be judged will exactly agree. However, after several hours' practice with the scale, especially with critical supervision by an expert, the results of an examiner's judgments appear to be reliable.

On the basis of these measurements, standards for various school grades have been suggested. For the sixth grade these average about 70 letters per minute, and for the eighth grade about 80. The average Ayres score for quality is about 55 for the sixth grade and 65 for the eighth grade. There is evidence that these standards are probably higher than social or vocational requirements demand. Probably all social requirements would be met by a speed and quality of 60, as suggested by Wilson and Hoke (*54*).

TABLE 17. Defects in Writing and Their Causes

Defect	Cause
1. Too much slant	(1) Writing arm too near body (2) Thumb too stiff (3) Point of nib too far from fingers (4) Paper in wrong position (5) Stroke in wrong direction
2. Writing too straight	(1) Arm too far from body (2) Fingers too near nib (3) Index finger along guiding pen (4) Incorrect position of paper
3. Writing too heavy	(1) Index finger pressing too heavily (2) Using wrong pen (3) Penholder too small in diameter
4. Writing too light	(1) Pen held too obliquely or too straight (2) Eyelet of pen turned sideways (3) Penholder too large in diameter
5. Writing too angular	(1) Thumb too stiff (2) Penholder held too lightly (3) Movement too slow
6. Writing too irregular	(1) Lack of freedom of movement (2) Movement of hand too slow (3) Pen gripping (4) Incorrect or uncomfortable position
7. Spacing too wide	(1) Pen progresses too fast to right (2) Too much lateral movement

Handwriting is basically a series of arm and hand movements associated with letter and word writing. Difficulties in writing consist in lack of proper motor coördination required to form letters legibly and with acceptable speed. Freeman (*16*) offers an analytic scale for judging writing defects, the causes responsible for them being shown in Table 17. Orton and Gillingham (*39*) say that causes of special disability in writing may be divided into these groups: (1) those caused by motor difficulties, (2) those largely dependent upon apraxic factors, and (3) those arising from lack of visuo-kinesthetic association. The last two of these are held to be related to failure to develop a unilateral neural dominance.

The mechanical nature of writing is further suggested by the lack of relation with intelligence. The few correlations reported show wide variation, the highest being 0.41. The median of 7 correlations is at 0.08 and the mean at 0.13; hence a coefficient of the order of 0.10 may be taken as representing the relationship between intelligence and writing ability.

Remedial instruction in writing is aimed at the formation of the proper arm movements necessary to maintenance of a speed neither too slow nor too fast, to accurate formation of letters, to maintenance of uniformity in the slope of letters, and the like. The exercises to be used must be decided in the light of the needs of each individual case.

Mirror Writing

While writing problems in general are relatively infrequent in the psychological clinic, there is one peculiar form of abnormal writing that is of clinical interest. This is mirror writing, which is described as writing backward so that the script is readable in its mirror image. Figure 8, from the files of the Indiana University Psychological Clinic, is an example of the mirror writing of a twelve-year-old girl whose I.Q. was 68.

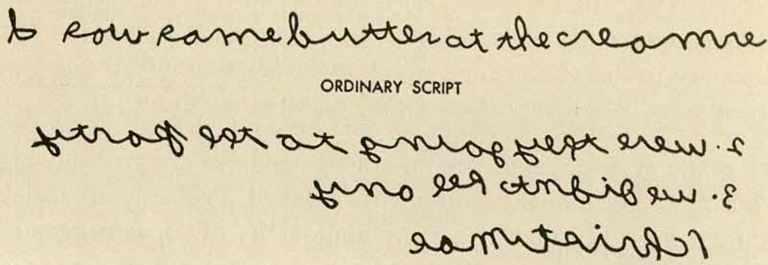

FIGURE 8. Mirror Writing. The first line is ordinary script written by the same subject.

The causes of the condition is not clear but Hildreth and Scheidmann (26), reporting on other researches, say that these children are usually left-handed but not necessarily so. Furthermore, in left-sidedness sinistrad movements are easier just as in right-sidedness dextrad movements are easier. These sinistrad movements are shown in reversal of letters either in pairs or sequences. This condition was formerly thought to be very serious. It must be remembered that young children may reverse letters normally.

This condition is relatively infrequent probably because these children are not completely left-sided. It may be of help to the diagnostician to determine if the child is left-eyed and left-footed as well as a tendency toward left-handedness. It may be that these children lack complete lateral dominance.

Remedial training must do more than merely draw the child's attention to the defect. The following plan may be followed in attempting to retrain the writing along the normal lines:

1. Stop all spontaneous writing.
2. Establish regular practice periods.
3. Practice should be writing slowly from copy, preferably from blackboard.
4. At first the teacher may guide the child's hand.
5. The letters, in large size, may be traced.
6. Practice may be necessary on every letter.
7. Retraining should be free from emotional pressures.

Better, of course, than any remedial training is prevention, which is entirely possible if careful attention is given to beginning writers, especially the left-handed, and measures are taken to correct the first sign of reversed writing. In the usual school situation it is likely that a majority of mirror writers will show spontaneous correction. Mentally deficient children are probably the chief exception. Persistence of the habit into adult life may be a diagnostic sign of infantile reaction.

ARITHMETIC

This fourth tool subject, while probably of greater importance to the child than either spelling or writing, is considered last because it only indirectly involves language ability, and it seemed better to discuss the language abilities at one time.

Included in arithmetic are three fairly distinct processes which are related in a manner similar to reading mechanics and reading comprehension. The first of these is numeration, involving the idea of numbers, counting, and the like; the second, computation or mechanics, including the four basic processes—addition, subtraction, multiplication, and division—used with whole numbers, fractions, and decimals; and the third, problem-solving or the application of the first two processes to problems requiring arithmetic for solution. These processes are closely related; they are not identical.

Ability to count does not guarantee success with computations, nor does a rather high accuracy in computation facts necessarily mean that the child can use them in problem solving. Successive steps in arithmetic skill have been shown to require higher and higher degrees of mental ability. For computational facts Washburne (*51*), in reporting investigations of the "Committee of Seven," has presented Table 18, which shows the minimal mental ages for learning certain of these facts. In addition to his M.A., the child must have a certain minimum correct retention of the preceding facts which in only one case is less than 80 percent. Washburne's explanation of the table is as follows: "The following summary table indicates the mental-age levels . . . children should first attain if at least three out of four of them are to make the very modest mastery represented by a retention test score of 80 percent in the various topics herein mentioned."

TABLE 18. Minimal Mental Ages for Arithmetic Processes[a]

Topics	Years	Months
Addition facts:		
Sums ten and under	6	5
Sums over ten	7	4
Subtraction facts:		
Easier 50	7	0
Harder 50	8	3
Subtraction process	8	9
Multiplication facts	8	4 or
	10	2[b]
Simple long division, one- and two-place quotient	10	9
Meaning of fractions:		
Nongrouping	9	0
Grouping	11	7
Graphs, simple bar	10	5
Percentage, Case I	12	4 or
	13	11[b]

[a] Table reprinted by permission from page 670 of the *29th Yearbook of the National Society for the Study of Education*, with changes requested by G. M. Whipple, Secretary.

[b] The investigators found the latter M.A. to meet the criteria more nearly, but the lower M.A. may be considered satisfactory.

It is evident from the previously mentioned study and others that successive steps in arithmetic computation depend upon maturation in intelligence as well as experiences. Subtraction is more difficult than addition and division more difficult than multiplication. This order of course has been traditional in our schools although the recent tendency has been to upgrade by one year the presentation of arithmetic facts.

Solving verbal problems seems to present a different group of skills. The writer recalls his own teaching in these elementary grades in which the pupils would ask in an annoyed fashion, "Do you multiply or divide?" One twelve-year-old girl had discovered that the relative number of integers gave her a cue to the correct computational process without reading the problem in the textbook. Monroe (*36*) pointed out this pattern some time ago. The children can solve verbal problems if they have mastery of computation facts and terminology is familiar.

Causes

Unlike reading, spelling, and writing, arithmetic achievement is not specifically affected by sensory, motor, or perceptual deficiencies. So far as these may influence all educational achievements they are of importance here, but in our specific concern with arithmetical disability we need not discuss them. This particular educational disability may be attributed to one of three main causes: (1) lack of intelligence, (2) lack of mastery of computational facts, or (3) inefficient methods in doing the operations.

Intelligence

A summary of published coefficients of correlation between intelligence test scores and arithmetic achievement (not differentiated between computation and problem solving) indicates that the relation is of the order of, but slightly smaller than, that for reading. The range of 34 coefficients (r) is from 0.25 to 0.92 with the modal group being 0.50 to 0.59, and the mean and the median both 0.55.

Poor Computational Habits

As Washburne (*51*) has shown in the study already referred to, each successive step in computational facts requires not only increased general intelligence but also a certain minimum mastery of the preceding facts. Thus to master the easier subtraction facts a child must not only have an M.A. as shown in Table 18, but he should show a retention of at least 84 percent of the addition facts; for the harder subtraction facts he should have a retention of 96 percent of the addition facts.

Computational facts must be mastered for facility in use. Drill is necessary at least in the meaningful and useful facts. Excessive drill is not helpful although mastery of essential facts is a goal. If the mastery of successive steps is limited by absences, illness, poor teaching, there will be missing the background for higher level processes. These lacks must be determined and general improvement will follow.

Inefficient Methods of Work

Addition (especially when it involves carrying), subtraction, multiplication, and division all may be performed by several methods, each of which has its warm supporters. Although a great deal of psychological and educational investigation has gone into the study of these processes, there is still disagreement as to which is most efficient. However, any one of the accepted methods is much more efficient than some of the cumbersome, idiosyncratic methods devised by children. Such unique methods often result in the correct answer but they are extremely slow. One boy, a former pupil, developed a system of subtracting from left to right. If it were necessary to borrow he would begin all over from the left side. In subtracting dollars and cents it became quite complicated. For example, to subtract $84.82 from $93.71, he had to borrow three times but erase and rewrite as he progressed from left to right. This is hardly efficiency.

Perhaps more frequently unique methods are based upon lack of clear understanding of the process, leading to an incorrect answer. Such results are noted in ordinary tests merely as incorrect, but the reason for the error is not evident. Green and Buswell (*24*) give concrete instances illustrating this. For example, a third-grade pupil subtracted 4 from 86 thus: "Six and four are ten. Ten and eight are eighteen. Turn it the other way makes 81." This is only one point from the correct answer, so the teacher might well believe that the subtraction fact 6 − 4 was not a sufficiently strong habit. Actually the difficulty was more serious, for the child had almost no idea of the general process involved. A sixth-grade pupil multiplying 35897 by 2 got the answer 76244 instead of 71794. Her method: "Seven 2's are 14. Seven 9's are 63, and 1 is 64. Seven 8's are 56, and 6 are 62. Five 2's are 10, and 6 are 16. Three 2's are 6 and 1 is 7." In this case the erroneous answer would suggest no reason for the error as the first one might.

Diagnosis

The examination of children with arithmetic disabilities probably does not need to be quite so complete as that for reading disabilities, but it should include determination of intelligence level, and those phases of the educational history which might indicate interference, because of absence or the like, with the establishment of fundamental computation habits. Difficulties in problem solving may rest upon a reading disability; for example, the child does not understand the problem when he has to read it, but he may be able to do it satisfactorily when it is read to him.

Probably the more important diagnostic problem is the determination of the nature of the disability. Merely knowing that the arithmetic achievement level is low in an individual or a class is of importance, but it does not offer a satisfactory starting point for corrective work. The disability may be one of several possible kinds, and unless the specific one is known, corrective training may entirely miss the point. It is uneconomical to train the child in things he already knows. Therefore results on the survey or general achievement type of arithmetic examination are of only limited value in diagnosis.

Diagnostic tests if properly devised not only point out the presence of errors but also indicate possible causes of these errors. A child may secure a satisfactory number of correct answers but in a slow, laborious manner; or he may have incorrect answers because of lack of necessary previous operations, carelessness, lack of comprehension of the processes involved, etc. Thus some children have not mastered the addition facts and are forced to count on their fingers; or they break numbers up into parts, solving 26 plus 8 by successively adding two fours to 26 because the 8 + 6 fact has not been fixed. The addition $\begin{array}{r}3\\ \underline{7}\end{array}$ may be easily solved when arranged in a column but utterly failed when arranged as the formula $3 + 7 = ?$. Subtraction may be difficult or impossible because of the child's weakness in addition. Within any of the four fundamental processes many different incorrect responses are possible. For example, in addition, the child may count on his fingers, carry incorrectly, use the wrong fundamental operation, subtract the carried number, forget to write down the whole answer, etc. Similarly in subtraction, multiplication, division, fractions, decimals, and other computational processes, there is a lengthy but finite number of possible errors.

It is the purpose of individual diagnosis to discover such erroneous methods. The frequency and something of the type of errors having been found by means of formal tests, the next step is close analysis of the child's actual activities. This may be done by direct personal examination. As in all testing, the child must be put at his ease and adequate co-operation must be secured by suitable preliminaries. He should be told that you are going to give him some arithmetic problems and you want him to work them orally so that you can see just how he does them. Problems should be selected from any suitable list; or a standard individual diagnostic test, e.g., that of Buswell-John, may be used. The first problems should be very easy ones, which the child will certainly solve. The examiner should make a complete record of the child's own verbalization of his process in solving the problem, and also a record of such things as counting fingers, tapping, and the like. If the child neglects to speak aloud while he is working he should be reminded, or, perhaps better, he should be asked to relate after he has come to a solution just exactly how he reached it. By starting with very simple problems in each of the fundamental processes and working through to the point in difficulty where the child is unable to respond, the examiner has a record not only of his methods of work but also of his limits in terms of difficulty.

Remedial Work

In most clinic situations the psychologist's connection with corrective work will be limited to recommendations. These will first include aspects related to conditions not primarily associated with arithmetic. Thus the child's abilities as found by intelligence tests may enable the clinician to suggest limits in achievement and so save unnecessary labor in attempting to teach fractions when the child can probably not go much further than short division. Factors of physical condition, home circumstances, or perhaps general attitudes between the child and the school should all be considered before direct remedial teaching is undertaken.

The remedial teaching directed toward the difficulties found is the task of the classroom teacher or a special teacher, and under ordinary circumstances cannot be entered into by the psychoclinician himself. He can supply the teacher with a list of the unsuitable methods the child actually uses, and perhaps make some suggestions as to how they might be removed. As yet, however, there is no standard list of remedial procedures that will correct all of the possible difficulties encountered. There is no objection to giving remedial work to small groups of children if a sufficient number of them exhibit the same sort of difficulty to make the group teaching economical. One generalization may be made; that is, it is unnecessary and uneconomical to teach a child what he already knows. Beyond that, corrective work depends upon the needs of the child.

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Chapter

7

The Gifted Child

DEFINITION

WHEN we speak of the gifted child, we speak of the child who has within him the potentials for the achievement of eminence. We expect to find him within the upper 1 percent of the child population in intellectual ability. If a valid intelligence test score is obtained from such a child, he will receive a quotient of approximately 130 or above as measured by the Stanford-Binet scale. Standardized intelligence tests have a satisfactory degree of operational validity although they do not have absolute validity.

In Terman's (4) classical study in which he attempted to get a sample of this top 1 percent, the I.Q. scores of children selected for the final study ranged from 135 to 215. Hollingworth (27) studied children with intelligence quotients of 180 and above. These are the children Hollingworth describes as being important to civilization in inverse ratio to their frequency of occurrence since they can originate new patterns.

Long-term community projects now in progress include gifted children selected solely because of outstanding creative ability or evidence of unusual ability in social leadership. Special classes for gifted children in many urban schools have included children with Binet I.Q.'s of 120 and above. It is from this group of gifted children we expect to find adult citizens who will maintain our way of life and insure progress.

This chapter was written by Victor Goertzel and Mildred G. Goertzel, Fountain House Foundation.

Any definition must be arbitrary because intelligence is not distributed according to "types" but in accordance with the normal curve as are height and weight. In this chapter when the unqualified term "gifted child" is used, it refers to the child who falls in the top 1 percent in learning ability. It will often be necessary to speak of the highly gifted as differing from the moderately gifted. The child who tests above 170 on the Stanford-Binet scale is as far above the child who tests 130 on the same scale as the latter child is above the child who tests 100. Among gifted children who have identical scores, there are great variations in talents and traits.

Special Problems

The gifted child is not a clinical problem because he is gifted. Such children tend to be more emotionally stable, more socially conforming, and less inclined to delinquency than are other children.

He is included in this book because it has been found that his giftedness has often made his social and vocational adjustment difficult. The gifted child becomes a problem when he is not permitted to develop naturally. He needs to be free to read the books he enjoys, to make the experiments which challenge him, to speak to others who understand him, to have his questions answered. He needs to be free to grow emotionally and intellectually as well as physically. If he is severely frustrated in this growth, he may become antisocial, withdrawn, or negativistic in his behavior. He often develops poor study habits or loses interest in academic achievement. He frequently does passing work in school but performs far below his capacity.

The gifted child becomes a problem when he is rejected socially by children and adults who are unable to accept his differences as natural and good. He frequently doubts his intellectual ability and often considers himself a social failure.

The gifted child becomes society's problem when it is evident that he is not going to be able to actualize his potentialities.

There is a serious need for more physicians, scientists, teachers and other trained professional workers. Each year thousands of highly gifted high school graduates drift into jobs that require little knowledge or judgment. This poor use of human ability is wasteful and speaks badly for the future of our country. Pritchard (*38*) reports a survey by Clark of 58 countries to determine the factors which cause some countries to be rich and others to be poor. He finds that the crucial factor in determining the income and wealth of a country is the provision it makes to capitalize on the ability of its peoples. He says that any country that makes good use of its human resources can become wealthy.

Identification

Terman (*44*) found that the teacher's judgment as to the brightest children in the school populations he tested was most unreliable. The classroom teacher is the key to the locked door for the gifted child and all too often the door remains locked. In one instance a student messenger came in with the only child in the school who tested above 140. This was a fortuitous find, for the messenger had brought the wrong child, one the teacher had not intended to send at all.

Many further studies have corroborated Terman's findings. Lewis (*32*) studied Kuhlmann-Anderson Intelligence Tests and personal inventory data on children believed to be "extremely mentally retarded," or to be of "genius caliber" or to have "distinct problems." Data were secured from 455 schools in 310 communities. The teachers indicated that they considered 3359 of the children to be mentally retarded, 341 to be geniuses, and 2041 to be problems. Analysis of the data on those reported to be retardates showed 63 percent to have Kuhlmann-Anderson intelligence quotients of 80 and above; of the geniuses 27 percent had earned quotients of less than 110. The "geniuses" chosen showed ability to adjust to classroom situations, intellectual and academic bent, desirable personal traits, and superior academic achievement.

In a previous study, Lewis (*31*) studied children of high intelligence who had adjustment difficulties. Out of 45,000 school children he found 50 with intelligence quotients over 145. Two of the 50 were rated as "dull" or "mentally sluggish" by their teachers. These two children were from families low on the socioeconomic scale.

A story of two gifted girls entering a vocational high school is told by Pritchard (*38*). A psychologist doing routine tests was excited to find that these two freshman girls were extremely well endowed intellectually and that both were interested in science. The school was one that was not college preparatory and the psychologist suggested that the girls take additional courses in another school. The director of curriculum and programming refused to accept the examiner's results. She made her own investigation of the girls and did not care what the tests said. "Why, you should see their basting stitches!" This educator is only following the traditions of her profession. There are many historical anecdotes about the failure of the teacher to recognize genius in the classroom.

Henderson (*21*) has collected these items: The University of Konigsberg said of young Kant: "The departments of language and mathematics report that young Kant is doing well, but the department of philosophy reports that it is impossible to get any philosophy into his head." Thomas Aquinas was named by his fellow students the Dumb Ox. Charles Darwin was considered at school to be a very ordinary boy.

Before we condemn teachers, historic and contemporary, for their failure to recognize intellectual ability, let us remember that the gifted child represents only 1 percent of the total population and that of this 1 percent only a few are seriously maladjusted. The teacher has daily problems with the delinquent and the emotionally disturbed children in her room. Look over these notes as they might have been made by a teacher expecting to have a conference with her principal. Which of these cases will merit the most attention? These are notes made on very real persons.

Boy 1

Boy, senior, approached school doctor. Begged for a note saying boy was suffering from nervous breakdown and must leave school. Boy was often truant in grade school. Has not made one friend. Is ridiculed by other children. Mother reports child did not speak intelligibly until three. Father disappointed in son's backwardness in both sports and school work. Boy known to go about chanting songs about God and nature; songs which he improvises. Teacher finds him a nuisance in class. He encourages disrespect of the teacher. Boy hates school so much he hates his country and would like not to be a citizen.

Boy A

Boy is leaving secondary school with recommendation by teacher that he is capable of doing advanced work in math. Lad became intellectually excited over compass at four. Uncle introduced him to the magic idea of the use of x to signify the unknown while the boy was very young. Did higher math at 10. Read Kant at 13. A young doctor, friend of the family, has spent nearly every Sunday with the boy for a period of five years. They study and talk together.

Boy 2

Boy of twelve, sickly at birth. Had big head. Older women in family predicted he would never be normal. Boy born to middle-aged mother. Mother lost siblings to this child shortly before his birth. Mother refuses to think him "different." Dotes on him. Brought boy to school and berated teacher in his presence for having said boy was queer. Boy has not been back to school since. Plays in cellar under house with old bottles, some of which have poison in them. Boy goes around trying to sell things —blueberries, vegetables, etc.

Boy 3

Boy, having graduated from secondary school, has always been overactive. In grade school he was sent out to run around and around the playground. Talks incessantly. Dancing teacher describes him as the naughtiest small boy in the world. When beaten soundly by teacher, the child threatens retaliation at the first opportunity. Three years in first year of secondary school. Some subjects he refuses to try to learn. His only awards are in sports. He put a bomb in a well. The bomb exploded and singed his eyebrows. Father very disappointed in boy and thinks boy is so wild he will have to be sent away to some uncivilized, remote place where his ways may be better tolerated. Or thinks boy will have to find his life work in military services. An aunt seems fond of the boy and keeps his escapades secret when she can. Mother is occupied with her social life. Mother

Boy B

Boy 12. Mother is former school teacher. Father is successful businessman. At ten he read Gibbon's *Decline and Fall of the Roman Empire*, and Burton's *Anatomy of Melancholy*. At twelve the boy has started his own successful small business although his parents are well-to-do.

Boy C

Virile, healthy, red-headed child with a great "drive." Showed early interest in drama, journalism, and poetry. Has knack for turning phrases. Good feeling for English language. Cultured home. Father nationally known figure. Mother a charming and vivacious woman. Parents have fine relationship to each other. Boy shows unusual independence of thought.

is foreign. Boy is foolhardy. When cornered in a hide and seek game on a bridge, he jumped off the bridge into a ravine thinking some pine trees would break his fall. Fell 29 feet to hard ground. Laid up for months. Is now graduating. Vocational guidance?

Boy 4

Father was elderly when child was born. Mother does not send child to school. Keeps him home for lessons. Dotes on him so much she saves and labels his discarded clothing so posterity can see it when he becomes famous. Saves all his childish scribblings. Mother is snobbish. Has money. Thinks working people are paid too much. Is known for not paying bills to tradesmen.

Girl 1

Preadolescent girl. Father, a severe alcoholic, is now deceased. Maternal grandmother who has care of the child never says "yes" when she can say "no." Girl lives in phantasy as mistress of dead father's household. Is homely and is often told so. Has been shamed for lying but persists in habit. Is crippled. Wears brace. Has fears of burglars.

Boy D

Attractive, robust child from distinguished, cultured family. Child has had close relationship with parents. Has traveled widely. An excellent teacher (Swiss governess) has inculcated in him a sense of the socially significant. In a theme written at nine he writes, "The working people (of ancient Egypt) have nothing . . . the kings make them work so hard and give them so little, that by wingo! they nearly starved and by yinks! they had hardly any clothes and so they died in quadrillions."

Girl A

This child reads far beyond her age level. Searches house for books adults hide from her because they consider them too mature. Has had advantages of private schooling and travel. She is affectionate and responsible in her relationship to her younger siblings. She is usually a conforming child and seeks the approval of adults.

Will the reader please pardon a deception made for a purpose? If you will now match Boy 1 with Boy A you can proceed to identify the children referred to as Einstein (*15*) Edison (*33*), Churchill (*43*), Franklin D. Roosevelt (*16*), and Eleanor Roosevelt (*40*). These hyphenated biographical sketches are made from two deliberately chosen points of view.

Column 1 is written from the viewpoint of an imaginary individual close to the family who sincerely questioned the way in which the child was being reared. Column 2 is written from the viewpoint of a person who knows that these children grew up to be eminent adults and is looking for evidences of giftedness in the accounts of childhood experiences.

If you did not recognize the deception, you should have sympathy for teachers, contemporary or historical, who are too concerned with a child's behavior to evaluate his intellect adequately. The making of these biographies is a good exercise for instilling humility in those of us, both professional and amateur, who are prone to make diagnoses and recommendations glibly from inconclusive data. They also verify Terman's feelings that the intelligence level is one of the most important things we can know about a child. If it were possible to write a third column giving data on a complete psychological study of these children, we would have another interpretation which might seem equally unrelated to the first two. This third column would not necessarily represent the final word in the study of man. That word has not been written.

Try making, as I have, hyphenated biographies of Yehudi Menuhin, Arthur Koestler, Norbert Weiner, Stephen Spender, Albert Schweitzer, Rudyard Kipling, and Theodore Roosevelt. Or choose your own subjects. The study of the childhood biographies of gifted men and women will facilitate the identification of today's highly gifted children.

It is understandable that a kindly teacher hesitates to designate any given child as being intellectually superior to others. Many sincere parents and teachers fear that once a child is labeled as gifted his playtime is over. Gifted children are thought of as being sedentary, isolated, and unhealthy.

Unless a preliminary workshop on the gifted child convinces the teachers of the social value of scientific identification, it is probably unwise to ask a teacher to try to select the intellectually gifted children in her room for testing. A teacher was told casually about a child in another school system who is most unhappy doing simple arithmetic in his second grade room because he loves to do algebra instead. Freddy recently obtained a Binet of 176. Her reaction was immediately negative. "Is he an only child? Are his parents using him to show how superior they are? His brother is a promising young scientist? Then he must be a menopause baby. His mother rejects him. All menopause babies are rejected. (?) He is trying to win her favor by being a genius."

She disclaimed any prejudice against the gifted child and was sure she had never seen one. She was so sorry for Freddy. He could never be normal. If she were his teacher, she would see that he never got hold of an algebra book again. His parents were at fault for letting him learn algebra.

She is an intelligent and reasonable young woman and we tried to surmise the deeper reasons for her distress. She feels that if Freddy were in her room the other children would suffer by comparison. It is not fair of him to be so bright, healthy, pleasant, and so prized by his parents. He violates her idea of a democracy where all children have identical experiences and keep to their "age level."

It is well to preface any school-wide attempt at identification by a workshop where examiners and teachers can reach agreement as to the uniqueness and value of each child in the classroom. No child should be made to feel either inferior or superior. Each child needs to feel that he has every opportunity to learn as freely as he grows. If Mary is busy doing what she likes best to do and feels pride in her accomplishments, she will not resent Sue's doing something else. The resentful child is the child who feels he is caught in an intolerable situation and that someone else has escaped the situation and he cannot. It is quite true that when a large group of children of varying abilities are placed in a competitive learning situation, the creation of special classes or enrichment classes for a few is likely to create tensions and antagonisms.

Antagonism toward the gifted child is not new to our age. It is not fair to identify the child and make his status known unless the knowledge of his status is received with sympathetic understanding. It is sometimes better to avoid the effect of prejudice by not using the convenient tags of "gifted" or "superior" or "genius." Trait identification may be more acceptable. Teachers can be asked to find their omnivorous readers, insatiable collectors, askers of unanswerable questions, and doers of bold experiments.

Scheifele (*3*) has compiled a list of the intellectual, physical, social, and emotional traits that seem to be common to gifted children. All gifted children do not have all these traits. The list is a good guidepost for subjective evaluation in the identification process. If used wisely, it can be most useful in making identification of gifted children. This list is compiled from her study of research done on large samples of gifted children. Her list includes specific references to published research which verify each statement. We are grateful to the publishers, the Bureau of Publications, Teachers College, Columbia University, for permission to use this material.

I. *Intellectually*, the gifted child, in relation to other children, tends to:

A. Possess superior ability in reasoning, generalizing, dealing with abstractions, comprehending meanings, thinking logically, and recognizing relationships.

B. Perform highly difficult mental tasks, an ability described as "power."

C. Learn more rapidly and easily.

D. Show intellectual curiosity.

E. Possess superior insight into problems.

F. Have a wider range of interests.

G. Show greatest superiority in reading ability, both in speed and comprehension; language usage; arithmetical reasoning; science; literature; and the arts.

H. Do effective work independently.

I. Apply originality and initiative in intellectual tasks.

J. Show less patience with routine procedures and drill.

K. Exhibit alertness, keen observational ability, and quick response.

L. Show as much unevenness in abilities in the subject-matter areas as other children.

M. Have a longer interest span; show more interest in abstract than practical subjects, and less in manual activities.

N. Have an interest in the future, a concern with origin and destiny and death though unable emotionally to accept realities of the latter.

(Gifted boys excel gifted girls in general information, arithmetic, spelling, science, and history; girls over ten are slightly superior to boys of that age in language ability.)

II. *Physically*, the gifted child, in relation to other children, tends to be:

A. Slightly heavier and taller, and to be heavier in relation to height.

B. Somewhat stronger and healthier; well nourished.

C. Relatively free from nervous disorders.

D. A little more advanced in ossification of bones.

E. Mature at an earlier median age.

III. *Socially* and *emotionally*, the gifted child, in relation to other children, tends to:

A. Show superiority in desirable personality traits; be more courteous, coöperative, obedient, willing to take suggestions, be better able to get along with others, and have a keener sense of humor.

B. Possess a superior power of self-criticism.

C. Exhibit a greater trustworthiness when under temptation to cheat.

D. Show less inclination to boast or overstate his knowledge.

E. Receive more opportunities as leader; up to 150 I.Q.; beyond that point to have ideas and interests that are too advanced for his peers; work and play alone more often; above 160 or 170 I.Q.

F. Have the same type of play interests and activities, in general, but frequently has play interests that reveal a level of interest two or three years beyond his age norm.

G. Show a greater preference for games involving rules and systems—complicated games requiring thinking. Have more information about games also.

H. Enjoy the same outdoor games which are preferred by average children.

I. Prefer sedentary, relatively quiet games in the absence of stimulation from others.

J. Create more imaginary playmates, in the case of the younger gifted children.

K. Prefer playmates older than himself, children of his own mental age.

SOCIETY'S NEED OF THE GIFTED CHILD

There are those who question the practical advisability of giving any special attention to the needs of the gifted child. They believe that the taxpayers should not be burdened with the needs of a minority group and that the overcrowded schools should not be expected to take on still another task. They say the parent of the gifted child who is not satisfied with the basic education given in the public schools should send him to private school.

There is no known formula for rearing or educating children, gifted or otherwise, which guarantees a successful product. Psychological research can answer some of the questions raised as to the nature and needs of the gifted child. Research workers from various fields can speak as to the economic value of the gifted child. A question is often raised as to whether the gifted child retains his special abilities as an adult. Terman's (*5*) studies demonstrate that general intelligence tests given as early as six, eight, or ten years of age tell much about the ability to achieve either presently or thirty years hence. Not one subject developed "postadolescent stupidity." Two forms on the Concept Mastery Test were given to 950 subjects in 1939–40 and to 1000 in 1951–52. On both tests they scored on the average about as far above the generality of adults as they scored above the generality of children when they were selected. In a twelve-year interval between the two tests, 90 percent increased their intellectual stature as measured by these tests. The number who became research scientists, engineers, physicians, lawyers, or college teachers, or who were highly successful in business or other fields, is described in each case as being many times the number a random group would have supplied. Not all children with high intelligence become eminent, but high achievement without high intelligence is most unlikely.

A further evidence of the potential ability of the gifted child to achieve eminence is seen in Cox's (*12*) study of the childhood experiences of eminent men and women. There is a marked resemblance in the traits noted by Cox among children who were to become eminent and traits of gifted children as described by Scheifele in a summary reproduced earlier in this chapter.

There is a serious shortage of workers trained in specialized fields in our country and these shortages, according to a study directed by Wolfle (7), will become more acute during the next several decades. We have a serious shortage of doctors, nurses, teachers, engineers, and scientists in various fields. These are the professions we need to help us to maintain our standards of living and to provide increasing satisfactions for future citizens. One gifted child can make a contribution that can have inestimable economic value. There is no money that can pay for the services of the man or woman who will find ways to reduce human suffering from schizophrenia or cancer. A distribution of scores on the Army General Classification Test of students specializing in fields of study in which there are critical shortages shows that the weighted averages of all fields combined is 135 for undergraduate students and 139 for graduate students. Wolfle states that no great distortion is involved in equating I.Q. scores with AGCT scores. The average score for a medical student is 140 AGCT. We have a great shortage of physicians. Seventy percent of gifted children who make AGCT scores ranging from 135 to 144 but who also make low grades in high school do not attempt higher training.

Not all gifted children want to be cast in an academic mold. Business, organized labor, and the arts will continue to need and use many such brilliant children. Wolfle's concern is with society's needs and with the children whose potentials are unrecognized and who would be eager to have an opportunity to develop their potentials if circumstances permitted them to do so.

Hollingshead (*25*) found 38 gifted children among the students in a midwestern high school. Eleven of these came from a social strata which seldom thinks of sending a child to college. He tells of a brilliant boy, Joe Brummitt, who wanted to become an aeronautical engineer. He was from a working class family and had not been active in the school's social organizations. Although Joe was admittedly the most brilliant student in the school, the annual college scholarship was awarded to a socially prominent girl whose influential well-to-do parents demanded it for her. Joe went to work in the factory. The discrimination was justified on the grounds that Joe Brummitt was not a good "all around student." He had not been well adjusted socially, by school standards. A national need for Joe Brummitt and others like him who would like to have an opportunity for higher training has attracted the interest of many concerned groups and individuals. Much of the interest is motivated by an urgent economic or social need. Industries want competent employees. The government is concerned with the health needs of the nation. Communities want good specialized services.

The National Merit Scholarship Foundation planned to award 350 grants to high school seniors during its first year of operation. The G.I. Bill of Rights has aided many students. Many states provide scholarship aid. Thousands of scholarships have been created by national, state, and local business concerns. Some of these scholarships are not used. Some able students lack adequate early training. Many lack motivation. Many are unaware of the existence of the scholarships.

Early identification is necessary if an adequate use of intellectual potential is to be achieved. The Markle Fund research grant for the identification of talent was made to encourage research on new methods of identifying talent in youth and the discovery of future leaders. The object of the research is to develop new methods of revealing emotional stability, drive, force, and motivation.

The neglect of the economically valuable human resource represented by the gifted child can be partly explained by the existence of a widespread prejudice against intellectualism. Causes of prejudice against the gifted minority need scientific research. The existence of this prejudice has been commented upon cogently by such scholars as Margaret Mead, A. H. Maslow, R. M. Hutchins, and David Riesman.

A danger in the demand for specialized services by industry and business is that many of the scholarships offered by them seek to implement the training of scientists only. In the Middle Ages it was the artist, poet, and musician who were sought out and supported by the wealthy. The Middle Ages produced great poets, artists, and musicians. Today we respect the scientist and it is easier for the young scientist to get scholarships. We need equal recognition for our talented poets, musicians, philosophers, and social scientists.

Terman (*5*) says that however efficient our tests may be in discovering exceptional talents, and whatever the schools may do to foster those discovered, it is the prevailing spirit of the times which will decide by the rewards it gives or withholds what talents will come to flower.

SOCIAL ADJUSTMENT

The gifted child is affected, like other children, by adverse conditions such as poor health, a broken home, or rejecting, overambitious, or neglectful parents. But because of his unique position at the cold far end of the intelligence scale, he has some problems peculiar to himself. He is accused of snobbishness, is often rejected by his peers as a playmate, is derided for being a "bookworm," laughed at for his big words and fine language, told to sit still and say nothing when he displays too much erudition. A well-meaning adult tries to keep him "normal" by restricting his activities to make them fit the adult's notion of what is the right and proper activity for a child of his age. Another equally well-meaning adult may exploit him by drilling him for "quiz" programs. All his toys may be educational, his trips inspirational. And he is forever at the mercy of other adults who find his very existence a negation of democracy and try to put him in his place so that he will not become conceited.

A contemporary scholar who writes with insight remindful of Hollingworth is Hildreth (*23*) who carried on a study of four boys for seven years. She shows what the peer problems of a child of exceptionally high intelligence can be in the most favorable of conditions. Developmental material for three mentally gifted boys and a boy of similar age with average mental ability who served as a control were collected over a seven-year period starting in the nursery years. All four boys came from homes of similar economic and social status. All mothers were working, professional women.

During much of the seven years all the boys were enrolled in the same excellent school. The school offered stimulating experiences in the form of projects and activities. Pupils made acquaintance with scientific phenomena from the first grade. An elementary science laboratory with a specialist in charge was available to the older pupils. All children had access to the art studios, the industrial arts, the household arts laboratories. The pupils participated in school management. Classes were small, teachers carefully selected. The average I.Q. was 120. Longitudinal testing over a period of seven years gave the following scores on the Stanford-Binet: Boy A, 170, 171, 200, 183; Boy B, 137, 153, 151, 158; Boy C, 125, 145, 144; Boy D, 100, 101, 100, 115, 107. Each boy maintained his relative rank during the seven years with consistency on mental and linguistic traits, psychomotor skills, and scholastic achievement. The gifted children were not backward in manual dexterity.

The school program was successful with B and C. D was withdrawn, grew lethargic, sullen, and discouraged despite skillful and concerned teaching which tried to help him gain status and security. He was withdrawn and enrolled in a school where his average abilities would not cause him to be challenged so severely. A, when he was first observed, had an amiable disposition and was friendly with the other children, but was not able to work with them because he was always so far ahead of the others in his grasp of a situation. He was always at ease with adults. But he was patient and tolerant of the others' ideas and was more or less admired and accepted by the others who recognized his abilities. In kindergarten he was described as humorous, never a showoff, not conceited, full of vim and gusto. At eight, A had become dictatorial, insistent on having his own way, inclined to precipitate a fight when controversies arose. When he was 11, the teachers observed he was a curious mixture of high intelligence and infantile emotional reactions. They recognized the boy needed a more challenging program, but were at a loss as to how to provide for a child so extremely gifted. Teachers recognized that this boy offered a challenge that even the best of them was unable to meet in regular school classes, even when most of the children were rapid learners. Acceleration in grade placement did not take care of his need for advanced school work.

C was the most liked and was most socially adept. B made more effective use of his high mental ability than did A. C was intelligent, good looking, developed a fondness for a little girl which persisted throughout the school years, was always smiling. He was creative, original, stimulating to others. He was unanimously elected by his sixth grade class to the council. His great friendliness and many interests made him more popular than was sometimes good for him. He was inclined to fool around, to be distracted by the attention he received, to waste time. He was generous and quick in emergencies.

B at eight was solemn and quiet. At nine he was somewhat dogmatic, but had come to be regarded as a "regular fellow." At ten he had established himself as a leader.

The boy A is the child whose peer adjustment is almost certain to be unsatisfactory in the average public school. Hollingworth (*26*), who studied a number of children with Binet I.Q.'s of over 180, concluded that special schooling, at home or in private school, was the only answer to the problems of the child who is as much as 40 points above the mean of a group in intelligence. Young children, Hollingworth found, were more rejected than older children. Gifted boys, according to Burns (*11*), have more problems than do girls in England in grammar school.

Hildreth, Brumbaugh, and Wilson (*2*) find the children enrolled in the Hunter College elementary school for gifted children generous and more self-critical than egotistical. The Hunter population mean I.Q. (Stanford-Binet) is 151.9. Scores on the California Personality Tests showed group medians that are well above norms as reported for average populations. The brighter the child, the more likely he is to be misunderstood by his contemporaries. Teachers set high goals for the children until working at maximum level becomes second nature. The child is given an honest appraisal of his own powers and is taught to feel he has a responsibility to live up to expectations held for him. Enrichment is at the child's experience level. The school atmosphere is permissive and homelike. Peer problems are at a minimum. Discipline problems are almost nonexistent.

The Portland, Oregon, schools are carrying on a five-year experiment which places gifted children in special classes for only a part of the school day. The Ford Foundation and Reed College are coöperating in this study. Wilson (*47*, *48*) describes the specially devised tests of talent in art, music, creative writing, social leadership, and mechanics used in setting up the special enrichment classes in the Portland schools. Elementary classes meet two to five times a week for special subjects. High school students meet in special sections or for junior-senior seminars. Students feel that their peer relations have been bettered or are unchanged by participation in the enrichment classes.

Gifted children in general seem to set high standards for themselves. They compare themselves with the eminent men and women whose biographies they read. They are often reminded by the need for self-effacement by those who fear they may overvalue their academic achievements. They are found to underestimate their own abilities. They have fears of social inadequacies.

Brandwein (*9*) studied thirty gifted boys and girls who had won honorable mention in the Westinghouse Talent Search or had placed as one of the fifty finalists. They were quiet, reflective, inward looking. They liked to hike, read serious books and magazines, to listen to classical music, and to attend the theater. They had a strong tendency to do social service work, read to the blind, church activity, etc. A vast majority bought books for their own use. They tended not to smoke until the senior year, or not to smoke at all. They were almost never in difficulty with the teachers although many disagreed with the teachers over interpretation of school work. They were conservative in dress. They spent considerable time in self-initiated projects such as stamp collecting and "ham radio." They were seldom elected to office. They came from homes with substantial libraries. Most parents had ambitions for professional lives for their children. Twenty-four of the thirty were first children; sixteen were only children.

Brumbaugh (*10*) says that she saw no signs of inflated egos at the Hunter school for gifted children but was frequently in the position of having to give encouragement to children who had "deflated egos." Goddard (*17*) says that in five years of daily contact he saw no signs of snobbery in the special classes in Cleveland. Terman (*4*) found that the men who made the poorer use of their capabilities were those who lacked self-confidence and had inferiority feelings as adults and who lacked a desire to excel as children.

Roe (*39*) has made unusually complete psychological studies of 64 eminent psychologists, anthropologists, and biological and physical scientists. As boys these scientists to be pursued rather independent paths, following their own particular interests with more than usual intensity. They sometimes had one or two good friends. They had limited social experiences as children and continue to have limited social experiences as adults. In their homes learning was highly valued. Generally, family patterns showed overprotection and firm control. Many of the anthropologists are still rejecting or disrespectful of one or both parents. The physicists and biologists developed ways early in life which involved little personal interaction. They are happy at work—often only at work. They are now independent of parental relations, without the guilt and feelings of hopelessness so noticeable among the social scientists. The psychologists show conflict over dominance and authority and need to hold nurturant attitudes. As a group, the common theme in the Thematic

Apperception Test stories is a general helplessness in the face of severe problems.

Voluminous unpublished data on these men has been deposited in the library of the American Philosophical Society. This is the first group of eminent men to have submitted to such thorough psychological examination. The Rorschach, the Thematic Apperception Test, and the Verbal-Spatial-Mathematical Test compiled by the Educational Testing Service, and recorded interviews were among the techniques used by Roe. These men's accounts of their childhood are often reminiscent of the accounts of those who study young gifted children. A physicist had a mother who worried about his reading so much and about his lack of social contact. Another scientist was in perpetual flight from two or three overgrown louts who liked to catch him and twist his wrist. A famous psychologist "had a hell of a time in kindergarten." An eminent anthropologist once led a "stink bomb" attack on the faculty. Another overate because it was the only satisfaction he had. A biologist says simply that he was always lonesome, the other children didn't like him. He didn't know why it was always that way. This study and Terman's study of the differences between scientists and nonscientists in a group of 800 gifted men (*45*) mark the beginning of an effort to discover trait differences among gifted children and adults and also the causes and consequences of these differences. Terman finds his nonscientists make a better showing than scientists in social adjustment. Most consistently high in social adjustment were those in law and social science. Most consistently low were the engineers and physical scientists. The physical and biological scientists reported that their life work offers the most satisfactory outlets for their mental capacities.

Ruth Strang (*42*) has received the confidences of many gifted children who are fearful of ability to succeed in school and who have feelings of inadequacy in social situations. One girl expressed the idea that to be taller than most boys her age was bad for any girl but that "being smarter was fatal." Gifted children are vocal and are better able to express their feelings, but there is reason to believe there is harm in trying to destroy their drive to excel, their desire to achieve commendable goals, and their pleasure in accomplishment through fear of having them become socially unacceptable because of vanity.

The members of the Educational Policies Commission (*1*) established by the N.E.A., and the American Association of School Administrators advise that the parent and teacher should not conceal from the child the true degree of superiority which he has in respect to either intellect or special talent. They feel that such concealment made with the purpose of fostering modesty may dull ambition or cause emotional conflict. They feel that gifted children more often underestimate than overestimate their abilities and that society pays dearly for this underestimation in wasted talent.

The parent who is told that his child has exceptional ability often asks for guidance as to his own attitude toward his child's giftedness. Pritchard (*38*) says that it has come to her attention that younger parents, especially those with college backgrounds, have been taught to place a maximum value on social adjustment, on being liked by one's peers, on being one of the group. Therefore these young parents are reluctant to have a child's gift or talent developed for fear it will be a social barrier that will set the child apart from his classmates. Such parents, she believes, need the reassurance that neither giftedness nor talent, properly developed, need result in eccentric behavior, egocentrism, or any kind of queerness.

She feels that other parents, unhappily, begin to value their children more for what they are than who they are. These parents may become overprotective, overanxious, and overdominating in their relations with both the child and the school. They begin to make impossible demands and to make lofty goals for the child's future that the school's facilities and the child's interests and ambitions do not justify.

We need and are lacking normative studies of emotional problems of gifted children in varying school situations. A study now in progress by Havighurst (*19*, *20*) has as one of its aims the study of social prestige in relation to scholarship. He and his staff have chosen a town of 40,000 in which to study maladjusted and gifted or talented children. Groups of six responsible citizens of the town will be given the responsibility of the welfare of a very small group of children. Professional guidance is given each group during its first meetings.

Preliminary reports indicate that distribution of musical and artistic talent does not seem to be related to socio-economic status. They find that talent is suppressed by an inhospitable environment and that of those children ranking in the top fifth of the population in verbal intelligence, one-half come from the upper third on the socio-economic scale and one-half from the lower two-thirds.

There is much we do not know about the social adjustment of gifted children. The study of group interaction in creative and critical activity has received virtually no systematic attention. We need studies of tensions in groups in which the gifted child participates. What are the effects of being in any group where some always fail and some always excel? What factors determine the social status of boys and girls at different age levels? Why, in both the United States and England do gifted boys have more emotional and academic problems than do gifted girls? What are the social problems for both boys and girls in regular school classes? In segregated classes? Under what circumstances does exceptional intelligence become creative intelligence? How can a climate of social acceptance for the gifted child be created? To what degree does the competent exercise of ability in youth make for better social adjustment as an adult?

UNDER ACHIEVEMENT

Some gifted children have less opportunity than others to make a contribution to society's need for them. The gifted child is not always found among the best students in his class. Jane is so bored she does not do her assignments. Ted tries to answer all the questions and is given poor grades because he talks out of turn. Susan daydreams and is inattentive and her teacher thinks Susan is dull. Jerry quit working in school when the teacher gave him a C grade in outside reading because the teacher knows Jerry is a gifted child and could have read more books than the five big books he did read for his report. Jerry knew that Bill, who read only one tiny book, received an A and resented the teacher's behavior which was inexplicable to him. The teacher knew Jerry was disturbed, but thought Jerry needed to be kept from becoming conceited about his I.Q. and was not sorry for him. Jerry didn't even know he had an I.Q., he merely thought himself cheated.

Mary's parents are so proud of her special talents they boast of her before friends. They permit her little playtime. She has lost interest in both her studies and the piano. Jenny wants to be popular with the boys and has had an unfortunate emotional experience which has convinced her that boys like only stupid girls. She has now decided to make herself appear stupider than any of the boys in her class. Bill hates drill and routine and has an indecipherable handwriting. Harold is so engrossed in his chemistry experiments he neglects his regular assignments.

These are some of the children who are brought to the child guidance clinic by anxious parents and whose problems may be solved. The underachievers whom the guidance center does not see are those whose parents are not well educated, well housed, or well employed. The child who is most likely to make appropriate use of his unusual abilities is the child who comes from a well-to-do, cultured home. He has an added advantage if he has certain personality traits favorable to achievement.

This is in contradiction of an American myth relating how genuine ability always finds adequate expression although its possessor is ill, friendless, and poor. It is in contradiction to the educational theory that all the gifted child, or any child needs, is to be tossed, untutored, into the academic pool to sink or swim.

A comparison of the young men who made the most use of their known intellectual potential among a group of 750 studied by Terman and his associates (*4*) with a group of similarly endowed young men in the same group who made the least use of their potential will serve as material for guidance to those interested in the underachieving gifted child. These young men were studied from childhood to adulthood.

The top group (A) included 150 high achievers. The low group (C) included 150 low achievers. The top group included nationally known figures in science, the arts, and education. The bottom group included firemen, clerical workers, policemen, and workers in various service trades. Women were not included since there are no known norms for comparing differences in the abilities of housewives and mothers. The C group were not necessarily failures in life. At the time they were interviewed they had made less appropriate use of their superior mental endowment than the others.

The two groups were alike in grade school achievement. In high school the C's grades were lower, their participation in extracurricular activities less. The slump was not the result of loss of intellectual ability. The A's were accelerated. They averaged 15 months younger at graduation.

Half of the A fathers, but only 15 percent of the C fathers, were college graduates. There were more books in the A homes. Fewer A parents had been divorced.

Eighteen years before the A and C ratings had been drawn up, the A children had been markedly superior in prudence, self-confidence, perseverance, and the desire to excel. They also rated higher in leadership, popularity, and sensitiveness to approval or disapproval.

As young adults, ratings on a dozen personality traits made by the man, by his wife, if he had one, and by a parent, if the parent were living, agreed unanimously on the four traits in which the A and C groups differed most widely. They were "persistence in the accomplishment of goals," "integration toward goals as contrasted with drifting," "self-confidence," and "freedom from inferiority feelings."

Items can be taken from the field records on these two groups. Many of the differences reported are small but the cumulative effects of socio-economic and personality differences show themselves in the material. When we check the early records we find the A and C men were *alike* in:

interest in outdoor sports
religion and domestic arts
scores for masculinity and sociability derived from play interest
tests of freedom from overstatement and trustworthiness
age of parents
birth order
number of siblings
number of abnormal relatives reported
health
sense of humor
cheerfulness
permanency of mood
ability in science and art
success in school work in grade school.

When we check the early records, we find the A and C men were *different* in that the A's as compared to the C's:

walked a month earlier
talked two weeks sooner
had parents who averaged much above the underachievers in vocational status and cultural background
read earlier
were read to more
had slightly more ability in mathematics and dramatics
had more books in their homes
were less often from broken homes
weighed more
rated higher in fondness for big groups
rated higher as leaders
were more popular
were more likely to prefer older companions

had more living fathers
were three times as likely to have a father who was graduated from college
were much less likely to have a father who had gone through only the 8th grade
were rather higher on social adjustment
made more collections
had more play information.

Brumbaugh (*10*) met in 1954 with young people who had started kindergarten at the Hunter College elementary school for gifted children in 1941. Reports were received from twenty-six of twenty-seven students. The missing student was abroad. The others were all in college and were doing well. They had won honors, several had Ford Foundation scholarships. They had retained a zest for learning. In kindergarten their Binet I.Q.'s had ranged from 138 to 185. In 1947, the range for the same group was 137–200. This school is tuition free and admission is from a certain section of Manhattan near the school. Parents are largely professional and represent many different ethnic groups. There is no underachievement reported in this situation which combines early identification with good schooling.

Gowan (*18*) reports an unpublished study by Landstrom and Natvig of gifted achievers (A grades, median I.Q. 131), of gifted nonachievers (C grades, median I.Q. 130), of overachievers (A grades, median I.Q. 107) and of a central group (C grades, median I.Q. 103). In this study achievement is measured by grades and not by standardized test. The importance of social status to grade achievement is indicated by the notation of activities or offices held by each group: gifted achievers, 134; gifted nonachievers, 65; overachievers, 145; central group, 50. Parents of the achievers and overachievers are also more socially active as judged by church attendance. The gifted achievers and overachievers study harder, win more awards, have more private lessons. The central group does the most part-time work. Both gifted groups plan to do professional work, but the achievers are much more likely to plan to work in the home community. The item which distinguishes the groups best is naming mathematics as favorite subject: achievers, 13; gifted nonachievers, 7; overachievers, 1; central group, 0. Gifted achievers have more books, more professional parents.

The importance of the parent's role in the academic success of his child makes it desirable to know something about the parents of the gifted child. Research shows that intelligence is by no means the monopoly of ethnic or national groups. Terman (*44*) found that the ancestral strains in his group went back to all the European countries and to China, to Japan, the Philippines, Mexico, black Africa, and pre-Columbian America. Taking population statistics into account he found an excess of Jewish, English, and possibly Scottish blood. Hollingworth (*26*) and Witty (*49*) verify these findings. Terman (*44*) found an Eurasian family with four highly gifted children. Hollingworth (*26*) found four siblings, all gifted, resulting from a Negro-white marriage. There is no evidence that a gifted child cannot come from any ethnic group or from any combination of racial strains.

Gifted children are most likely to be found in families where the father is a professional or businessman. The fathers of the children Terman (*44*) studied were 31.4 percent professional men, 50 percent semiprofessional and businessmen, 11.8 percent skilled workers, and 6.8 percent semiskilled and unskilled workers. The average schooling of both fathers and mothers was approximately 12th grade; homes were well kept; divorce was less common than in average homes. There were many distinguished ancestors reported by the parents. The average number of books in the home was 328. Mothers had breast fed the babies more often than had mothers of average children. Parents, even grandparents, tended to be urban.

The families enjoyed more than average income, but none were wealthy. This may indicate that the wealthy gifted children in that area were in private schools. Hollingworth (*27*) found the intelligence level much higher among private school children than in public school children in New York. Roe (*39*) found in her study of eminent male scientists that they were likely to come from professional families with a relatively low income. Many of the men she studied had worked their way through college. The anthropologists differed in that most of them came from the well-to-do business group. The parents of 100 children studied by Witty (*49*) in Kansas were much like the parents of the children studied by Terman. Witty found that both parents and grandparents had many hobbies: mathematics, music, reading, travel, invention, religious work, sports, politics, dramatics, and lodge work. Twenty percent of the parents enjoyed music, 30 percent were interested in home betterment activities, 50 percent were college trained, and many were active in the community.

Terman (*4*) and Wolfle (*7*) have noted that knowing the father's occupation is the best way of determining whether or not the boy is to be an achiever rather than an underachiever. The type of work the father does may also influence the vocational choice of the student. The higher the socio-economic level of the home the greater the likelihood is that the child will earn a degree in a liberal arts or science field. Fathers in professions or those who hold managerial positions are more likely to have children who are enrolled in the humanities or the arts. Social science majors are often sons of men in managerial positions. The fathers in skilled trades are more likely to send sons to college to become engineers or earth scientists. Two and one-half percent of all high school students now graduating obtain Army General Classification Test scores over 145 (equivalent to Binet I.Q. of 145) according to Wolfle. Forty-four percent of this group do not seek higher training. At the other end of the distribution is the 16 percent of freshman college students who have entered college although they have made low grades in high school and have scores of 85 to 94. Of the gifted children who do go to college, 98 percent are graduated. Three percent of the college students with AGCT scores of below 65 are graduated.

Hollingshead (*25*) has made us aware that the adolescent child is strongly affected by the social status of his parents. Wolfle finds that children of relatively uneducated parents are not nearly so likely to seek training beyond high school. If they do go to college, they do as well as do other students unless they are the children of farmers. Farm children are thought to be handicapped because of the inadequacy of their preparatory training.

Certain sections of the country offer better educational opportunities than do other sections. Wolfle (7) found that Negroes in the South, the French Canadians in parts of New England, and the Spanish-speaking immigrants of the southwest all represent the lesser utilization of high intellectual potential of minority group members. Jewish children have a better opportunity for fulfillment than do Protestant children. Protestant children have better opportunities for fulfillment than do Catholic children. Roe (*39*) studied 64 eminent scientists in the United States and found that none were Catholic, 5 were Jewish, and that the rest were Protestant, including two Mormons and two Quakers. The value placed on academic achievement by the cultural group in which the child is born and the local opportunities for good and economical schooling are influential factors in determining whether or not the gifted child is to have an opportunity to express his talents to the best advantage of the social order.

Identification and recognition alone can often make a great difference in a specific child's life. Kugelmass (*28*) tells of the effect of early recognition on the life of Ralph Bunche. Bunche was born into a humble home. His grandmother was not an educated woman although she was an individual of good character and superior native ability as shown by her behavior. When a church social worker made it known to her that her grandson had superior ability as evidenced by his school records, she gave him encouragement and had high expectations for his future. She wanted him to be a scholar. Roe (*39*) notes that all her eminent men, regardless of occupation of father, came from homes where learning was valued for its own sake.

A gifted child who has not been so fortunate as was Ralph Bunche is a child whose case history is to follow. The boy, George, obtained a Wechsler-Bellevue intelligence quotient of 126. Scores on the Wechsler cannot be compared directly with scores on the Binet; Wechsler scores in the upper ranges run considerably below Binet scores for the same children. The Wechsler I.Q. reported in the study below clearly places George well within the moderately gifted group. This boy, until he was sent to the state school for delinquent boys, was considered dull. His teachers had not recognized his intellectual potential. Only the minister was concerned with the social prejudice he experienced. You will note that George made rapid academic progress when placed in the relatively benign social climate of the boys' training school. We present this atypical case with the definite purpose of illustrating the need for early identification of gifted children so that the negative effects of a poor socioeconomic environment can be better counteracted. All children, gifted or otherwise, need to be helped if they are in unhappy circumstances. If pertinent facts are known about them, the help is easier to give.

Case No. 11. (Contributed by Dr. E. L. V. Shelley, Chief Psychologist, Boys Vocational School, Lansing, Mich.) George's mother died when he was two years of age. The boy and mother were abused a great deal by the father who deserted finally to parts unknown. The boy was placed in a home at the mother's death and remained until he was six years old. At this time he was adopted by a maternal aunt and her second husband. Apparently the mother had asked the sister to care for the boy and his younger brother and she was trying to carry out the mother's wish.

They lived in very slovenly surroundings. The adoptive mother kept dogs which overran the house and kept it in a filthy condition. Finally the foster parents were divorced on the grounds of infidelity on the mother's part and custody was given to the adoptive father who was in no way related to the boy prior to this situation.

He was a man of warm, sympathetic nature but poor judgment. He remarried and his second wife was a very cold, calculating, somewhat psychopathic individual. Her attitude toward George and his brother was very harsh and rejecting. Because of her own problems she was very suspicious about any sex activity between the boys and her daughter. Finally, on a charge which seemed to be manufactured that George had been molesting her little girl and doing some petty stealing, which was true, he was placed in a boarding home.

This did not work out well: The boy became difficult to handle and was taken back to the other home again. After some more difficulty, the foster father in despair placed the boy in another boarding home, from which he ran away several times. Finally they brought the boy back to his father's home and about this time the parish minister referred the adoptive father and his wife to me to see if I could help them straighten out the marital problems. I found the wife so lacking in ability to relate and to establish normal emotional contacts that I despaired of being able to help them much. However, we worked along for a period of time but an incident of infidelity was discovered which prompted the husband to wash his hands of the whole affair and get another divorce.

About this time the boy had gone through our program at the Boys' Vocational School. He was returned home and was sent back again for failure to adjust to a fourth boarding home. Typical of some of the experiences this boy has known was the choice of the mother's sister when the court was settling the divorce. She chose to keep the dogs rather than the boys. That is how the adoptive father got custody of the boy.

Psychological Testing:

Wechsler-Bellevue, Form 1	Verbal I.Q.	126
	Performance I.Q.	124
	Full Scale I.Q.	126

Subtest successes and failures very consistent, no unusual pattern to indicate anything important clinically. Bennett Hand Tool Dexterity Test—45th percentile. On 3–4–54 the Stanford Achievement Test, Intermediate Form K was administered. This test, Form J, readministered on 9–3–54, shows a growth of 1½ grades in reading, 1½ grades in spelling; no growth in grammar, and 1 full grade in arithmetical skills after six months attendance in our academic school. On 3–1–54, the Mooney problem check list was administered where 107 out of 210 items were underlined as giving the boy some trouble. He showed here an unusually high anxiety level. The only areas which did not receive a lot of underlines were health and school.

Group Rorschach was administered at that time, revealing a rather rich inner emotional life and some attempts to relate to people, but these relationships were emotionally inadequate. There was a healthy, outgoing striving on the boy's part and he was working for an extroverted adjustment. However, he simply did not learn how to relate adequately and was not getting much emotional satisfaction from his relationships with people. There was a normal amount of heterosexual concern for a boy of his age. Anxiety level was quite high. The boy showed strong feelings of insecurity and tended to distort reality, particularly when it threatened his status.

At the same time the Machover figure drawing test was administered. This indicated a tendency toward a great amount of autistic thinking and also showed evidences of the rejection and insecurity which he had known in his relationships with adults. The male figure was drawn first and indicated a strong desire to be accepted by the male figure, but faulty identification with it. There were indications, also, that he did not trust his relationships in this area and felt they might be lost quite quickly. He saw the female figure as a peer and not a mother figure and the normal adolescent heterosexual interest was evident here. He attributed considerable sexuality to this figure, however, without any particular preoccupation about it. Again the relationships were insecure and there was much anxiety. However, nothing of an unusual nature.

Prior to release in September 1954, the Machover was repeated, which is customary in our situation. Here we found an increase in anxiety and insecurity because the boy was going to a boarding home where he did not know what the situation would be. It showed how quickly he reflects the insecurities of the situation and conversely how quickly he would also respond to security. This retesting showed, however, that the boy had made some definite progress toward more adequate emotional relationships and apparently while he had stayed here had learned how to make some beginnings in establishing the kind of contact with other people which would result in some emotional satisfaction. A reasonably high anxiety level was still evident, but a more mature psychosexual development is also indicated.

Here is a boy of good intellectual potential, with lots of other possibilities, where family and community have failed to meet his needs. He truanted from school only once but he was not a particularly welcome member of the school community. Teachers were apprehensive about having him around, probably because his good intellectual endowment enabled him to make more trouble for them than if he had been duller. Apparently no one in the school situation suspected the boy's intellectual potential. At no time, prior to his admission here, was he ever given any intelligence tests. They had him operating at the sixth-grade level in school when he was of good eighth-grade background academically. Much of his social ostracism occurred in the school situation and he was always made to feel outside of the group. There is no evidence that anyone in the community, other than the minister, was ever concerned with the boy's lack of friends. George is not the only gifted child we have had here. I have found that they come to us in about the same proportion as they are found statistically in the general population.

THE EDUCATION OF THE GIFTED CHILD

Most gifted children are in classrooms where all children of a given age have the same assignments from the same textbooks. If a school administration decides to do something constructive about the plight of the gifted child in this setting, it usually considers acceleration, enrichment, or segregation, or some combination of these.

Acceleration

Acceleration is not so popular today as it was in the era 30 years ago when Hollingworth (*26*) decried the "lock step" in education. Terman (*5*) feels that the "lock step" is more the fashion now than it was at that time.

Keys (*29*) and Pressey (*37*) have studied accelerates found among college populations. Both found that the accelerates made superior grades and good social adjustments. Hobson (*24*) and Birch (*8*) have found the mental age is a workable criterion for admission to kindergarten classes.

Lehman (*30*) has made studies of the relation between age and creative achievement and has found that the peak of maximum creativity is reached in nearly all fields of science by men who are between the ages of 25 and 35. Wolfle (*7*) accepts Lehman's findings as further evidence of the economic waste of keeping competent students in school when they could profit by acceleration.

Passow (*35*) feels that the schools throughout the country are going to continue to be strongly partial to enrichment as opposed to acceleration, but thinks the positive effect of the Ford Foundation experiments with acceleration may swing the pendulum of professional belief back somewhat toward acceleration for the ablest.

Enrichment

The word "enrichment" is used loosely just as the word "gifted" is used loosely. It can mean dusting erasers, taking a trip to the zoo, participating in carefully planned coöperative "projects" in the classroom, or being released for a part of the day or week for special classes with other gifted children.

Children value being permitted to "help the teacher" and children need experience in altruistic behavior. If such privileges are extended only to the gifted child, other children are rightly offended and the peer status of the gifted child is worsened.

Good enrichment gives opportunities for self-expression, critical thinking, and satisfactory social relationships. Project assignments more nearly meet these criteria. It is pleasant to see a group of children working coöperatively on a project or a unit of assigned work. Such projects can give opportunities for the use of varied talents. These projects are good enrichment if they do not become "busy work."

Cutts and Mosley (*13*) tell of the experiences of 33 teachers who have tried to provide for the bright child in the heterogeneous classroom. Suggestions for procedures include forming ability groupings within the classroom; using projects which include independent reading, reference work, interviews, experiments, and construction; free choice of activity on completion of regular work; and individual work with the teacher after completion of regular work.

Pregler (*36*) of the Colfax School of Pittsburgh, Pennsylvania, has experimented successfully with a plan of enrichment classes for gifted children. Half of the day is devoted to workshops to which the children go just as other children leave for shorter periods for band or shop. They are encouraged to have a strong allegiance to their homeroom where their social and community activities are centered and where they spend a half of each school day with their chronological age groups. Three workshops for four periods each day take care of gifted children enrolled in grades one to six.

In the workshop they are grouped for learning purposes and do not have to hide their abilities in order to be popular with the social group. These children are found and evaluated during their kindergarten year and start workshop in the first grade.

Hollingworth (*27*) observed that the child with the Binet score of 140 can profit by only half of what is taught in the ordinary classroom, and that almost nothing of what is taught the average child has relevance to the highly gifted child.

Segregation

There is no lack of evidence that gifted children enjoy the privileges of being enrolled in segregated classes. Hildreth, Brumbaugh, and

Wilson (*2*) have made repeated positive observations of the children in the Hunter College classes for gifted children. Children who have been social isolates in the regular classroom can become leaders among children who understand their words and ideas. Hollingworth (*27*) was the first to describe this phenomenon.

Cleveland schools practice homogeneous grouping traditionally. Norris (*34*) believes that democracy in education means equality of opportunity. She feels that separate classes for gifted children's instruction are necessary if their needs are to be met. She finds such children need competition from children who are as bright as they. The special class offers chances of leadership in various forms and at various levels not possible in the regular classroom. Good work habits are established. Integration with the entire school system has been found most gratifying. Follow-up of students who have experienced the program has justified the special classes.

Cleveland has major work classes and enrichment classes. The major work classes enroll children with Binet I.Q.'s of 125 and above. The enrichment classes are made up of children with Binet I.Q.'s of 115 to 124. These classes are integral parts of the regular schools in which they are housed. Work in the classes depends upon the needs of the group. Children in major work or enrichment classes may learn a foreign language, have special work in art, study community enterprises, and develop individual special interests. Very young children do research projects and report on them.

Norris reports that few cities in Ohio have followed the example set by Cleveland in setting up special classes. Only four other school systems in the state have segregated classes and none of these are for elementary school children.

Voelker (*46*) acted as chairman of a committee which received 106 replies from a selected group of 200 school superintendents representing large, medium, and small schools in the United States. Two-thirds of the school systems reported they were not providing any special programs or services for the gifted. Five reported they had developed programs. Of those replying, two completely rejected the concept of the gifted child. It is clear that school superintendents in general have not acted upon the data presented by those who have done research and experimentation on the gifted child.

A study by Fine (*14*) of special classes which were discontinued gives some indication of the reason for the reluctance superintendents show for setting up special classes. The setting for this experiment was an urban neighborhood where the parents were of above average income and education. Many of the children were of exceptional ability. Few were retardates. Thirty-three percent of the children in the school were put in special classes. The Cleveland system was used as a model. Parents and students attached great importance to inclusion or exclusion. It was difficult to decide at what point a child should not be included. More and more children were taken into the program. Some children who were not included did as well in secondary school as did some of the children who had had the advantage of being in the segregated classes. Neighborhood tensions over the special classes developed. The special classes were abandoned in favor of small heterogeneous groups where recognition of individual differences could be made without causing community antagonisms.

School superintendents and school boards do not want to be involved in the neighborhood arguments that come because of special attention to a minority of its school population. Parents of left-out children can be a stronger pressure group than can parents of gifted children, who hesitate to ask for consideration of a child on the basis of his superior intelligence. It is difficult to determine accurately who should be included in the total group. The child who almost qualifies cannot be truly said to be less bright than the child who barely qualifies.

This concern for the child who almost makes the classes for the especially intelligent child has created dissatisfaction in England and is expressed in the pages of the *New Statesman* by Simon (*41*). In England children of eleven are given tests which determine whether or not the child is to be sent to the local grammar school to be prepared for college, or to a vocational school. Parents whose children fail to qualify sometimes send them to independent schools for training at the parents' expense. Sometimes this requires an expenditure of a third of the parents' income. Five years later some of the children who almost qualified and had to be educated at private expense do as well in the examinations taken for the general certificate at 16 years of age as some of the children who qualified for a classical education at public expense. The very nature of intelligence makes this an inevitable consequence but many English parents find the situation intolerable.

Other experiments permit each child to progress at his own rate. In such a setting the gifted child is not segregated or set apart.

Hester (*22*) set up a reading corner in an elementary classroom. The children were invited to come to one or all of three reading sessions. The work in the sessions varied in difficulty. If the children did not care to try to learn to read at any one of the sessions, they could busy themselves quietly in activity centers set up in the other corners of the room. At the end of the year each child had made commendable progress and several children's antisocial behavior had been improved.

It is not only in urban areas that teachers have become experimenters. Hester tells of two rural teachers who have used her methods successfully.

Children are immature and have a right to expect wise and firm guidance from their elders. The child will not develop his abilities if he chooses to play instead of study. We have always assumed in the past that children have to be forced to study. We need more information in this area. We know the child knows when his shoes are pinching his feet. Does he also know when he has outgrown his reader and arithmetic text?

It is possible that a national concern for the training of specialists to give essential services may soon prompt general attention to the education of gifted children. Multiple grouping of primary, intermediate, or grammar school groups may replace the familiar grades which are formed on the basis of forced segregation by age. The word "grade" as used academically will become outmoded. Acceleration will be so common that it will lose its social stigma. Cumulative records will be kept for each child and conferences will be held where the child, teacher, parents, and psychologist can talk honestly about the child's progress and his potentials for further progress. Respect for the human personality will require that each child, gifted or otherwise, be given an opportunity to grow mentally without either stunting or forcing.

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Chapter
8

Anxiety and Problem Behavior

Consideration of the "exceptional child" from the viewpoint of behavioral or physical abilities and disabilities enables one to make a relatively clear distinction of the norms of behavior and the deviations from the norms. However, a large proportion of children who come to the attention of the psychological clinic reflect adjustmental deficiencies traditionally classified as behavior problems. These children are "exceptional" in terms of their deviating behavior. In order to define deviating behavior, it is necessary to accept some description of average normal behavior. This can be formulated only in terms of social adaptability and acceptance according to standards set by a particular society. In this and the following chapter, the concern is with children whose behavior is not acceptable because of nonconformance to social or personal standards. As will be evident from the following discussions of the classification and origins of problem behavior, the complained-of acts are symptoms of more fundamental failures in adjustment. However, for pedagogical reasons, sections in these chapters are devoted to some of the major kinds of behavior deviations forming the presenting symptoms which bring children to the attention of the clinic.

CLASSIFICATION OF BEHAVIOR PROBLEMS

In general, the requirements for average normal behavior in our American culture include: (1) a physical organism physiologically ade-

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quate to maintain its own living processes and to carry out necessary functions; (2) capacity and abilities sufficient to enable the individual to acquire the knowledge and skills necessary to secure and retain a position significant to the broad socioeconomic needs; (3) maturity, which involves control and direction of physiological drives and of "emotion" to the end of the efficient functioning of the person within the group; and (4) the operation of all the foregoing in the individual, stable, integrated personality. Variations in any one of these areas will have effects in the others. Thus the failure to achieve control of emotional reactions may hinder achievement; or very low ability may retard the development of acceptable bladder control.

In dealing with any individual case, the clinical psychologist must keep the interrelations in mind if he is to reach an understanding of the problem. The focus of concern for the clinician is the child. Problem behavior is the expression of an individual personality and is the resultant of many interacting factors. The child is not merely a malleable organism which is at the mercy of the physical and social environments and unmercifully dominated by the parents. The child is also capable of strongly influencing his parents and the social environment. The very active child may elicit from his parents and other adults reactions which are quite different from those evoked by the very passive child. To understand the problem, the clinician must understand the child. He must determine how the various relevant factors interact and influence the child in order for the behavior, labeled as a problem, to emerge.

The general acceptance of the principle of multiple causation has not deterred many investigators from searching for "the" cause of a particular problem. Listing of problems and their apparent causes has led to many attempts to classify behavior problems in children. Some classifications have been based upon the overt behavior described as the problem; some have been based upon the etiology of the problem; some have been based upon the effects of the problem behavior. Some nosologies, such as that of Howard and Patry (*102*),[1] imply a definite etiology and therapy of behavior problems which are factually not substantiated. Distinctions have been made upon psychogenic or somatogenic bases. Paynter and Blanchard (*151*) proposed the dichotomous classification of personality problems and behavior problems. Ackerson (*10*) used this dichotomy, dividing behavior problems into personality problems and conduct problems. Kanner (*5*) divided problems into three groups:

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[1] For references in this chapter, see the list at end of Chapter 9.

(1) those forming essential features of, or sequels to, physical illness; (2) those expressing themselves as involuntary part dysfunctions of the individual; and (3) those expressing themselves clearly as whole dysfunctions of the individual. In the classification of psychiatric problems in children, Brown, Pollock, and Potter (*9*) divide the section listed as Primary Behavior Disorders into habit disorders, conduct disorders, and neurotic traits. Ackerman (*9*) also uses the classification of habit disorders, conduct disorders, and neurotic traits but amplifies and extends them. Diagnostic consideration of problems from the psychoanalytic viewpoint stresses unconscious motivation and the genetic patterns of development.

No classification has as yet been proposed which has proven entirely acceptable. The behavior listed as a conduct disorder in one scheme is shown as a habit disorder in a second, or as a personality problem in yet another. It has been stated repeatedly that problems of behavior in children cannot be classified satisfactorily, and that only children with problems can be classified. Clinicians have also rebelled against diagnostic classification entirely and have urged the consideration of the child as a unique individual.

Despite the dissatisfaction with classificatory schema, it can be useful clinically to classify for convenience. This type of classification does not arbitrarily restrict etiology or therapy to unsubstantiated notions. The student, for whom this book is intended, can benefit from the voluminous material concerning the problem behavior of children, if it is organized in some coherent manner. For the purpose of a textbook discussion, a classification based on descriptive problem categories can be reasonably utilized. However, it must be kept in mind that, in actual practice, one seldom sees a child showing only one problem and that in a pure form. Also, the frequency of occurrence of the various problems varies widely. Examination of the kinds of problems frequently encountered in clinics reveals that referrals are because of nervousness, restlessness, disobedience, stubbornness, temper tantrums, listlessness, dullness, destructiveness, fighting, lying, stealing, truancy, sensitiveness, worry, crying, fear, jealousy, enuresis, finger sucking, nail biting, sleep disturbances, feeding difficulties, speech difficulties, retardation in school, feeble-mindedness, immaturity, etc. (*10*). In a previous edition, a systematic comparison of the frequency of occurrence of these problems indicated that nervousness and restlessness, disobedience, lack of emotional control, and problems associated with retarded intellectual development were the most frequent problems.

In determining the frequency of problems referred to clinics, Gilbert (87) used three general categories: intellectual deficiencies, emotional and interpersonal maladjustments, and principal specific behavior problems. Table 19 shows the breakdown of these areas into ten categories and the frequency in each, according to age. The data were based on 2500 cases from representative urban clinical facilities, two "community orthopsychiatric" clinics and two "school psychoeducational" clinics.

TABLE 19. Frequency of "Referral Problems" in Metropolitan Child Guidance Centers[a,b] (After Gilbert [87])

Referral Problems Age	Under 6	6 to 10	10 to 14	14 to 18	Total	% of $\mathcal{N}$	% of All Cases Comm. Clinics	% of All Cases School Clinics
Academic difficulties	3	484	439	200	1126	45	27	56
Mental retardation	25	260	303	85	673	27	6	40
Aggressive and antisocial behavior	57	307	231	160	755	30	45	20
Passive, withdrawn, asocial behavior	53	248	160	85	546	22	32	14
Emotional instability and anxiety symptoms	61	291	154	74	580	23	34	16
Hyperactivity and motor symptoms	36	198	93	25	352	14	22	8
Sexual behavior problems	7	22	19	12	60	2½	4	1
Toilet training	34	75	50	2	161	6½	12	1
Speech defects	34	81	35	11	161	6½	6	6
Miscellaneous	31	128	122	63	344	14	20	9
Number of cases	178	1101	845	376				

[a] $\mathcal{N}$ = 2500 children; average 1.9 complaints per child.

[b] Community clinics and number of children from each are: Detroit Metropolitan Children's Center, 500; Phila. Child Guidance Center, 500. School clinics and number of children from each are: N.Y.C. Child Guidance Bureau, 680; Chicago Bureau of Pupil Guidance, 820.

These figures show that, for the combined data of the four clinics, the greatest proportion of problems is found in the category of academic difficulties. Aggressive and antisocial behavior has the next highest frequency. However, Gilbert points out that "there are wide differences between the two types of clinics in the relative frequency of these referral problems." A glance at the last two columns in Table 19 shows these differences. The most frequent problems in the community clinics are concerned with aggressive behavior, anxiety, and withdrawn behavior.

It can be readily seen that each problem listed involves a description of behavior symptomatic of disturbance in the child. When the child comes to the clinic the starting point in examination, diagnosis, or treatment must be the complaint. And the complaint is always a statement concerning, or a description of, behavior. The behavior which brings the child to the clinic usually is not in itself the basic problem. If a hundred children who will not eat are considered, it is found that, while the complaints are the same in all essential respects, the actual psychological problems may be quite different. The specific act, series of acts, or combinations of acts which are the basis for the complaint must be considered the result of the child's individual characteristics, his past experience, and the effect upon his behavior of such factors as parental attitudes and behavior, and environmental conditions. The complaint behavior, or symptom, is the expression of the underlying problem and represents an unacceptable or inadequate solution to difficulties in adjustment. Consideration of any complaint activity and the conditions and factors previously determined to be associated with such behavior should merely be the prelude to understanding the child. Classification and description of problem behavior do not imply a neglect of the child as a whole, and are not a substitute for such understanding. They serve merely as an aid in determining why the particular behavior is exhibited by a particular child.

Listing the frequency of the various complaints does not indicate the opinion of the referents concerning the seriousness of the problems. Parents, teachers, clinicians, or others may differ in their conception of what constitutes problem behavior and how serious it is. The comparison of data from several studies (*93*, *127*, *133*, *183*, *196*) clearly shows such differences. The evidence of these comparisons demonstrates conclusively that those groups which have the closest day-by-day contact with children find that behavior which interferes with *their* authority, *their* programs, or *their* ideals and beliefs is problem behavior. Only the clinicians who do not, professionally at least, have a close daily contact recognize the seriousness of behavior which does not noticeably interfere with the smooth functioning of routine activities. In general, the child may not understand or accept parental evaluation of his behavior as being a problem. However, Griffiths (*93*) concludes that, as the child grows older, he learns that he is expected to conform to social demands;

he realizes that the refusal to conform, or the overt expression of aggression or antisocial acts will not be tolerated.

Clinical experience suggests that, in recent years, parents have become increasingly aware of the potential harm in behavior such as excessively submissive or withdrawing reactions. With the increased dissemination of psychological and psychiatric findings to the public, parents may become increasingly sensitized to any behavioral deviation as potentially harmful, even though the behavior is well within normal expectations. Many parents currently bring children to the clinic, complaining about behavior which can be considered only a part of normal development. Their concern frequently reflects their own personality difficulties. Martens (*133*) has said: ". . . all children really are 'problem' children in that they do now or may present overt behavior difficulties which should receive attention looking toward early adjustment, and that overt problem behavior varies in degree from that which is close to zero to that which places a child in the ranks of juvenile delinquency."

BACKGROUND OF PROBLEM BEHAVIOR

Successful diagnosis or correction of problem behavior rests to a large extent upon the full appreciation of the many factors influencing the development of such behavior. All of the child's experiences, the interaction with members of his family group, with teachers and classmates in school, with playmates and others in his neighborhood, and to some extent with inanimate objects of his environment play a part of greater or lesser prominence in the development of his behavior patterns, whether they are acceptable or not. The physical characteristics of his home, such as the amount of space available and the consequent crowding or freedom of action, will influence the relationships with members of his household and thus affect his pattern of behavior. The adequacy or inadequacy of his physiological functioning, the development of constitutional characteristics, will influence his attitude toward himself and others' attitudes toward him.

To assign a single factor as the cause of a behavior problem is an impossibility. Although there are general principles about personality development and the effects of its disturbances upon behavior, and although we have some fairly well-established principles concerning the acquisition of behavior patterns, in the individual case we cannot depend upon generalities. We must know a good deal about the particular child and the people with whom he comes in contact. And we must know much more about them than may appear on the surface.

Among all the factors which are pertinent to the development of personality and behavior, those associated with the home are of the utmost importance. The child's relation to his parents, to siblings, and to other persons in the home; the parents' attitude toward each other and toward the child; the ideas about child training held by parents; unsatisfactory material aspects of the home—all these and many others play important roles in the child's development.

For several years after birth the human infant is almost completely dependent upon his parents for the satisfaction of his physical needs. The parents have the most intimate contact with the child in his early years and perhaps throughout a major share of his childhood. They serve as models for the child's attitudes and behavior. They actively direct, control, help, or hinder the child in his social learning. Since parental behavior is largely a product of their past experiences, the attitudes they have toward the child are affected by the attitudes their parents had toward them, their techniques of child rearing are strongly influenced by the manner in which they were raised. The father whose earlier home was dominated by a stern, unyielding father may frequently show the same kind of behavior in his relations with his children. A mother's unsound notions about child training may be exact replicas of her own mother's ideas. Sometimes with the same early environmental conditions, the opposite is seen and the father is determined that his children will have all the opportunities that were denied him in his childhood. This attitude often results in the parents' attempt to smooth out completely all obstacles in the child's path, and to save him from any kind of frustration; but the child fails to learn how to deal with adversity.

The marital relations of the parents exert a definite influence upon the child. As a result of domination of one parent, or for other reasons, quarreling and discord may result. This may take the form of rather subtle attitudes of one parent toward the other, or it may become evident in open arguments. One parent may instill a lack of confidence in the child toward the other parent. Sometimes the child appears to be used as a pawn, with one parent influencing actions which will annoy or disturb the other one. In these situations, whenever a home lacks parental coöperation in the training and development of the child, undesirable effects are seen in the child.

The importance of the parent-child relations in the etiological consideration of problem behavior can hardly be overemphasized. Their importance is indicated by the considerable research which has been reported. Shoben (*177*) showed that the influence of parental attitudes could be measured by developing a scale which successfully differentiated the attitudes of parents of problem children from parents of nonproblem children. The subscale of dominance (i.e., the parent puts the child in a subordinate role, demanding complete conformity) yielded a validity coefficient of 0.62; the "possessive" scale (i.e., the tendency to "baby" the child, to value the child's dependence on the parent) resulted in a validity coefficient of 0.72; and the "ignoring" scale (i.e., disregards the child as an individual member of the family) obtained a validity coefficient of 0.62. The validity coefficient for the entire scale was 0.77.

Champney (*50*) developed the Fels Parent Behavior scales around such factors as home atmosphere, extent of contact between mother and child, permissiveness toward the child, criticism of the child, emotional relationships between parent and child, and others. Baldwin, Kalhorn, and Breese (*23*) obtained ratings of homes on these factors. Lorr and Jenkins (*124*) found "substantial correlations" in the seven common factors which Roff (*170*) isolated from the results of the Baldwin study. They describe these factors as "concern for the child, democratic guidance, permissiveness, parent-child harmony, sociability adjustment of parents, activeness of home, and nonreadiness of suggestion." A further analysis by Lorr and Jenkins yielded three factors whose significance is summarized by the questions: "1. How far does this home sustain and encourage dependence and how far does it deny satisfaction to dependence? 2. How far do its methods of child training reflect democratic practices and values, or to what extent are they authoritarian and undemocratic? 3. To what extent is there a strict orderliness in the home or to what extent is the home lax or unorganized?"

Desirable conditions are shown in the relations which provide love, affection, and security for the child with at the same time recognition of the necessity of giving him freedom to build his own independent existence. Undesirable conditions are those which deprive the child of satisfaction of his emotional needs and prevent him from learning effective patterns of behavior. Rejection, oversolicitude, and inconsistency of treatment of the child probably have been regarded most generally as important determinants of problem behavior.

Bender (*27*), Ribble (*166*), Spitz (*182*), and others have attributed far reaching effects to deprivation of maternal care in infancy and later childhood. In the home, probably the extreme attitude of rejection of their children by parents is seen when a particular child or all the children are unwanted. Among the common reasons for such rejection are the economic burdens that additional children bring, interference with activities of the parents, and unhappiness in marriage. The rejected child bears the brunt of the parents' difficulties in not being able to acquire desired, or necessary, material possessions because of the added financial strain. He is blamed, mostly in the higher economic groups, for preventing the mother from participating in social activities which she desires. And when the marriage is an unhappy one, the child may be rejected simply because he is a product, and part of, the unhappiness in the marriage.

On the other hand, oversolicitude is equally undesirable. Many mothers encourage the dependency of their children. They continue to feed the child, dress him, fuss over him, make decisions for him, and so on, long after the child should have developed means of doing these things for himself.

Inconsistency of treatment makes for an unstable environment for the child. He has difficulty in learning what kinds of behavior are appropriate and acceptable and when they are not tolerated. Overindulgence and pampering one day may be followed by antagonism and punishment for the same act the next day. Consistent guidance by the parents is a necessary condition for the development of acceptable social behavior by the child.

However, factors such as rejection or overprotection should not be considered single determinants of difficulties in behavior. As Friedlander (*80*) has pointed out, the recent tendency to ascribe problem behavior to one major factor such as rejection may be misleading. From her investigation of 33 neurotic children and their families, she concluded that "In none of the cases did the disturbance appear to depend on one single personality factor in the mother, but rather on the complicated interplay between the conflicts arising in the child . . . and the reaction of the environment to these drives."

A stable home in which the child can feel secure and in which the child receives proper guidance is fundamental to his growth and achievement intellectually, emotionally, and socially. In the home the child may be given a great deal of stimulation and opportunity for development. But satisfactory growth can hardly be expected entirely independent of guidance by the parents. The child looks to the parents to set the limits for behavior. He thus learns at what point certain acts will not be accepted. He looks to the parents for encouragement, for love, for the satisfaction of his important needs. The child who is allowed complete freedom to do as he pleases may have difficulty in learning to conform to social regulations. This lack of training is frequently reflected in overt problems of behavior. Guidance may be given directly or it may merely be through setting an example. Parents are frequently completely unaware of the extent to which their behavior serves as a model for their children. Nagging, or advice and correction which are based primarily upon the parents' own desires, are usually ineffective.

It is generally recognized that the child should have security, independence, and guidance as minimum conditions for the most effective personality development. A home which provides these conditions permits the child to overcome his frustrations, to resolve his conflicts, to find acceptable substitute means of satisfaction when adverse environmental conditions occur.

ANXIETY AND FEAR

In recent years, an increasing amount of attention has been given to the relation of anxiety and behavior to the point that the concept of anxiety occupies a pivotal position in the conceptions of the development and treatment of psychopathology. Although varied theories have been presented concerning the genesis of anxiety, there is general agreement about the behavorial patterns of anxiety manifestation.

Anxiety has been described by May (*6*) as a "diffuse, undifferentiated apprehension" which occurs in response to anticipated danger. Anxiety is differentiated from fear in that it is not connected to a specific object, event, or condition by the individual. May, and others, distinguish between normal anxiety and neurotic anxiety. May says that normal anxiety "is a reaction to threat to values the individual holds essential to his existence as a personality." It is a reasonable reaction to the threat of a potentially dangerous situation and can be handled constructively "*or* can be relieved if the objective situation is altered." Neurotic anxiety is a reaction to threat which is "disproportionate to the objective danger," involves repression, and is managed by ". . . inhibitions, the development of symptoms, and the varied neurotic defense mechanisms."

The occurrence of anxiety in children is probably universal. In some degree anxiety is present in preschool children as they meet the new and strange demands of an enlarging world. The frequency and manner in which anxiety is expressed appear to vary with age. Despert (*60*) says that not one of the 78 children in the nursery-school group she studied was totally free from some manifestation of anxiety, although only 35 exhibited behavior severe enough to warrant special intensive guidance. With increasing age there is a decreasing frequency of generalized anxiety behavior.

Being a form of fear reaction, anxiety is characterized by the same physiological reactions as fear. Cannon (*49*) viewed the physiological reactions which accompany fear as the organism's "emergency" mobilization for action. Changes occur in the heart rate, blood pressure, respiration, digestive functions, and so on. The physiological activities affected are the varied functions mediated by the autonomic nervous system and the glands and organs it directly influences. In an anxiety state, the individual may have an accelerated heart beat, rapid, irregular breathing, dilated pupils, excessive perspiration, exaggerated tremor which often engulfs the whole body, and contorted facial expression. He presents a picture of extreme fright or terror. At the same time, the individual expresses feelings of fear without being able to relate these feelings to any specific object. He anticipates some impending disaster of dreadful consequence to him and cannot connect it to any particular aspect of his environment.

In the less extreme forms of this reaction, the individual feels apprehensive and fearful, is uneasy, expresses feelings that "something terrible" is imminent, is tense, and cannot relax. But he cannot specify any object or condition to which he is reacting in this manner.

In the young child, anxiety is frequently behaviorally expressed by restlessness and hyperactivity, statements of vague but strong feelings of symptomatic disturbances such as nail biting, frequent tearful outbursts, anger, enuresis, etc. In some cases, the vague discomfort of anxiety develops into a dramatic expression of an abrupt attack. Kanner (*5*), in describing anxiety attacks in children, says: "The child becomes terror-stricken and is afraid that he is dying. The face is flushed, the pulse is rapid, the eyes stare in panic, and there is profuse perspiration. The child complains of 'smothering' sensations. There is a pitiful plea for reassurance coupled with the inability to accept it." The physiological concomitants usually bring the child to the physician's attention. In many instances anxiety may have temporal and stimulus limitations. Richards (*167*) describes anxiety attacks appearing in the child who is tense and easily stimulated and who lives in an environment of strain and worry, following a dramatic but otherwise normal situation. The child may wake up in terror, with a full conviction that he is going to die. A careless diagnosis of cardiac difficulty or tuberculosis or some other feared condition aggravates his anxiety. The child and his parents direct attention to the supposed physical disorder; this is a further aggravation. As a result, the child may live for a long period in constant dread of permanent disability. Kanner (*5*) says that, although anxiety attacks are not uncommon, the condition is surprisingly often misdiagnosed and mistaken for cardiac dysfunction.

Similar overt anxiety reactions may occur when the child believes that a parent, a sibling, or some other loved person may die or may leave. Dreading separation from the mother, the child may show panic whenever he is left by the mother and demand that she constantly remain with him. For example, in a case reported by Pappenheim and Sweeney (*150*), a four-year-old boy refused to be separated from his mother who wanted to place him in a day nursery, so that she could look for employment. The mother could not be interviewed alone because the boy would not be separated from her. When his mother left and he was taken to the play room, the child became terror stricken, screaming and yelling with fright, and displaying violent anger. It was later felt that an important etiological incident had occurred a year earlier when a tonsillectomy had been performed abruptly without prior preparation. He had interpreted this event as a dangerous assault upon him and had felt completely unprotected and abandoned by his parents.

In some instances, a child's exaggerated fear reactions upon awakening during the night are attributed to separation anxiety. In general, such anxiety can occur whenever the child anticipates being left without the protection and support of the parents, and the child feels hopelessly unable to cope with the expected danger.

Overtly displayed anxiety also occurs when a child is continually frustrated, has little chance of achieving his ends, and feels threatened by factors in his environment. A logical hypothesis is that such overt anxiety reflects the child's inability to handle constructively situations which are threatening to him. The potential threat must be viewed from the child's standpoint. What is easily handled by one child may represent a highly threatening condition for another child. A child with a physical disorder entailing perceptual-motor disability may feel threatened by an apparently simple motor task that is easily performed by a healthy child. Similarly, when emotional conflicts are not resolved, the child may react with anxiety. It is commonly held that unresolved conflict of strong opposing motives generally elicits anxiety.

Many theorists have been concerned with the origin of anxiety. Goldstein (*89*) feels that anxiety is a catastrophic reaction to conditions which threaten the individual's very existence. It is more than the threat of pain, it is the threat to the individual's physiological and psychological integrity, endangering its existence, which evokes anxiety.

According to Freud's (*84*) theories, the capacity for anxiety is innate and is subject to influence by experiences subsequent to birth. May (*6*) shows how Freud, in the development of his concept of anxiety, relates the origin of anxiety to the trauma of birth and the fear of castration. The important factor common to both of these is the separation from, and the loss of, the mother. Fenichel (*76*) traces anxiety back to the "biological helplessness" of the infant which brings about a painful condition of tension when "the organism is flooded by amounts of excitation beyond its capacity to master." The first occasion of excessive undifferentiated stimulation, and therefore the first reaction of anxiety, occurs at birth.

From her viewpoint of psychoanalytic theory, Karen Horney (*101*) refers the beginnings of anxiety to disturbances and conflicts in the parent-child relations during the child's early years. According to her, the typical conflict which arouses anxiety in the child is one in which the child's dependency upon the parents is not reconciled with the child's hostility toward them. Sullivan (*185*) also relates anxiety to disturbed interpersonal relations.

The origin of anxiety also has been related, as a form of fear, to pain. Mowrer (*142*) has termed anxiety a "conditioned form of the pain reaction." Overstimulation of the sensory receptors in the infant gives rise to pain. Varied reactions occur, including withdrawal from the pain-inducing stimulus. Behavior which effectively lessens, or stops, the pain tends to be repeated and established as a learned response in subsequent similar situations. Stimuli other than the specific one provoking pain in the individual become associated with this reaction and later can produce this conditioned response.

The importance of anxiety lies in its capacity to motivate varied responses. Considerable experimental evidence has been obtained which verifies this characteristic of anxiety (*75*, *180*). Since any behavior which reduces anxiety tends to become habitual, it is readily seen how much of problem behavior serves this function and is a means of avoiding, or escaping from, conditions and situations which arouse anxiety. Freud (*84*) asserted that neurotic symptoms are acquired means of reducing anxiety and there is little disagreement with this proposition at the present time.

The psychologist in the clinic who is working with a child who has problems must be acutely aware of *every* aspect of behavior—and its implications—which is exhibited by the child in the diagnostic or treatment situation. He must be a particularly sensitive observer. Every problem calls for a modification of behavior in the child. Although the focus of attention is upon the child, the problem should not be considered solely as the child's problem. Nor should it be considered as wholly caused by the parents' handling, or mishandling, of the child. Parents, grandparents, siblings, and anyone else who lives in the home all affect the behavior of the child. The problem may be aggravated by conditions in the school. The clinician should use all the means at his disposal in determining the possible influence of every relevant factor.

The more objective the data which are obtained, the greater will be the confidence in the determination of the factors affecting the problem. However, with young children, it is frequently impossible to obtain as much objective data as the psychologist would like to have. He often must rely heavily upon himself as the measuring instrument, evaluating the behavior of the child—at home and in the clinic—on the basis of his own "internalized norms." He constantly must formulate hypotheses about the behavior and its determinants which are based upon his conception of the child and his home. The mechanical application and evaluation of the most objective kind of test data may add little to the clinical understanding of a child. A catalogue of identifying facts, behavior descriptions, ability measurements, personality information, physical characteristics, life history, and school adjustments does not in itself constitute a useful clinical picture. This is only the raw material. It is meaningful only when the clinician associates, relates, organizes, and interprets its elements so that he obtains an interpretive, dynamic picture of the child. And the clinical psychologist's skill in integrating the data concerning an individual case depends in large measure upon his knowledge of behavior in general. In addition to his theoretical orientation, the clinician should have wide knowledge of the characteristics of the behavior difficulties presented by children.

FEAR

The clinical psychologist is confronted not only with problems in which the child's behavior has been motivated by anxiety but frequently must deal with complaints of specific fears. The reaction of fear possesses the same characteristics as anxiety, except that it is associated with a specific object, condition, or event.

To some degree, fear is exhibited by all children. However, it becomes a way of reacting, in some children, that interferes with their adjustment in general. Under such circumstances, it is considered a behavior problem. Parents play a vital part in the development of fears in children and in training the child to use constructive means of coping with his fears.

Not all fears are undesirable. The individual who exhibited no fear with its attendant avoidance reaction would be atypical and certainly not well adjusted to his environment. Traffic dangers, occupational hazards, the dangers of unhygienic living, and many other similar environmental dangers must provoke fear responses if man is to exercise reasonable caution in avoiding them, and thus in avoiding possible injury and death from them. Jones and Jones (*107*) say, "Fear arises when we know enough to recognize the potential danger in a stimulus but have not advanced to the point of complete comprehension and control of the changing situation." It can be added that fear arises when the person *believes* the situation to be dangerous. Children should be taught to recognize the potential dangers in their environment. But they should also be taught the most effective ways of avoiding these dangers. It is the child's helplessness and inability to react constructively to his fears that emphasize the problem.

Although parents deliberately implant a number of fears in children, they generally are unaware of other, undesirable fears in their children which are due to parental influence. Considerable evidence suggests that most fears are the result of training rather than direct experience. For example, Hagman (*95*) found that the fears of preschool children tended to correspond closely to the fears expressed by their mothers. Jersild, Markey, and Jersild (*105*), in a study of children's fears, found that over 20 percent of those expressed by children from five to fifteen years of age were of ghosts, corpses, skeletons, death, and the supernatural. Not a single child reported any experience or even imagined experience with such things. Eighteen percent of the fears were of animals, but less than 2 percent reported attacks by animals that might be expected to result in fear. About 14 percent reported fears of the dark, being alone, strange situations, and the like, but not over 3 percent reported experiences of this sort. The conclusion must be that such fears arise through intentional or unintentional teaching by parents, playmates, or others. Threats of the "bogey man" and the policeman may be effective means of obtaining the child's compliance, but they are potent sources of fears that hinder the child's development. To prevent the development of undesirable fears in the child, parents should not use fear as a means of discipline. They should eliminate their own irrational fears, they should avoid excessive caution in relation to the child's play activities, they should be able to guide and help him when he reports fears learned from playmates—in short, the parents must do all in their power to keep the child from learning fears that will hinder adjustment, while at the same time they help him to build reasonable and desirable fears in connection with the common dangers.

Occasionally, fears are the direct result of experience. Many situations may be temporarily frightening to children or even adults. In some instances, an exaggerated reaction to such a situation is shown which may persist for days, weeks, or months. Furthermore, it may generalize to various objects. In one case, a six-year-old girl was frightened by the sudden loud noise of a large road-making machine near her. She reacted strongly but apparently forgot the incident. However, she began to show intense fear to all noises, including the common noise of an idling automobile motor. Another illustration is seen in the case of a two-year-old girl who was badly frightened when a large, black cat clawed her. Fear of the cat persisted. She became panic-stricken at the sight of a cat of any size or color and reacted similarly when a dog, or even a tiny puppy, approached her.

Exaggerated, unwarranted fear, in which the patient is fully aware of the unreasonableness of the reaction yet can do nothing about it, is termed a *phobia*. In general, phobias are specific; that is, they are fears of limited environmental stimuli, such as closed places, open spaces; crowds, animals or a particular kind of animal, light, darkness, a disease, fire, and so on through an endless list. Fears in children should seldom be considered to have the rigid, encapsulated nature of phobias, because children's fear behavior seldom is so specific nor do they recognize its irrationality. There is evidence, as shown by Bagby (*18*), that the phobias of adults can usually be traced back to childhood fears.

Correction

Fear reactions are based fundamentally upon the child's experiential history. The discovery of possible etiological factors in that history is a necessary prelude to understanding or treatment. The clinician must ascertain the sequence of events which led to the development of the fear reaction. He must determine and evaluate the home conditions, the kinds of techniques which the parents use for discipline and in training, the fears of the mother and of the father, the relations between the child and his parents and between the child and other members of the household. He must learn the extent of the child's experience with that which is feared.

In a broad sense, training is probably the most important reason for children's fears. Within limits, such training is desirable. Children must learn to fear and thus to avoid street traffic, fires, sharp knives, hot stoves, falling from high places, and many other similar things and situations. Such fears, when strong enough to insure care and caution, but not strong enough to cause unusual avoidance, are necessary in environmental adjustments. The fears of constructive importance must be learned by the child through experience and parental guidance. Such fears do not usually enter into behavior problems. But training, which is so desirable within limits, may go beyond those limits and result in the development of undesirable fear reactions.

This kind of training is probably seldom intentional. The parent has fears and by his or her actions affords the child a model of behavior. Overcautious and oversolicitous parents may protect the child from not only real but imaginary dangers. The action of a mother who protectively holds her child close to her while shuddering and cowering in fear of lightning and thunder tends to instill the same pattern of reaction in the child. Words are unnecessary in the tuition of fear. Actions and facial expressions are eloquent vehicles of communication in such a situation. On the other hand, the deliberate threat of abandonment, of fictitious characters, or of real symbols of punishment—such as the policeman—in order to keep children quiet and maintain discipline is a potent means of educating in fear.

Although the specific fears of parents are often instilled in the child, imitation and learning of fear reactions are not always of and from the parents. The child's playmates frequently have their pet fears which they expound at every opportunity. As the child imitates the speech and mannerisms of the parent, of the playmate, of the teacher, or of other parents, so he may imitate the fears and other emotional reactions of such persons.

The effects of direct, immediate experience on the development of fears is summed up in the truism that the burned child dreads the fire. It is easy to understand the fear of the child who burns his finger on the hot stove, who pokes his finger into an electric socket, who falls out of the apple tree, or who is in some way hurt. Although they may be wholesome, some fears may become too extensive and hamper adjustment. The conditioning of the fear responses to harmless stimuli, which Watson and Rayner (*193*) first explored experimentally with rabbits and white rats, occurs with great frequency outside of laboratory situations. It is fear responses formed in this manner that cause troubles which are probably second in frequency only to those arising from training and imitation. Single frightening experiences may be the basis of fear reactions that persist for some time. Such experiences are often forgotten after a short time and no evidences of fear are shown until months or even years later, when the person develops a phobia that may persist in spite of its irrationality.

The foregoing merely suggests some common general reasons for fears, for in each particular case the details of the etiology will be unique. But in every case an intelligent interpretation of the life history will afford clues to pertinent factors which must form the basis for treatment.

The ease and to some extent the success of active treatment for the elimination of fears depend upon the length of time the fear reactions have been evident, and upon the nature of the fear. Thom (7) distinguishes between objective and subjective kinds. The former includes fears of things or situations which have arisen directly from personal experience or indirectly from learning about them, or by imitation. The causes of such fears are usually obvious from the history. The subjective group includes those intangible fears, the causes of which are complex or so thoroughly forgotten that they are not at all evident in even a complete history.

Counseling for the first type consists largely in helping the child understand his fear. Frightening episodes should be discussed with him soon after they have occurred so that he may see them merely as unusual occurrences about which there is no need to have further fear. For example, if a child were frightened by a dog barking and running after him, the parent might explain that the dog wanted to play when he saw the child running, that he meant no harm, that if the child had not run the dog would not have chased him, etc.

If a child has a circumscribed fear of a definite object or class of objects it may be possible to eliminate it by careful reconditioning. This method has been clearly described by Mary C. Jones (*106*), who was able to completely eliminate a small boy's fear of furry objects. The procedure was to present a rabbit and food or candy in the same stimulus situation. At first the animal was kept in a cage on the far side of the room in which the child was eating. On successive days the rabbit was moved closer to the child until at last he had so completely lost fear of it that he would eat his meal with the rabbit on the table. The elimination of this fear spread to others, for, as the experimenter concludes, "By 'unconditioning' to the rabbit, Peter has apparently been helped to overcome many superfluous fears, some completely, some to a less degree. His tolerance for strange animals and unfamiliar situations has apparently increased." Essentially, this type of procedure consists of familiarizing the child with the object of his fears under controlled situations. Placing the rabbit initially at a distance from the child is less likely to elicit a strong fear response than putting it close to him. The fear is also kept at a minimum more effectively by having the food, with its great reward value, within reach of the child—much nearer to him than the feared object. With each successive trial in which the rabbit is present and there is only a slight reaction of fear, the inhibition of the fear is stronger. As the fear lessens, the rabbit loses its significance as a fear-arousing stimulus until, finally, the rabbit has become associated with, and a part of, the pleasurable, rewarding situation of eating candy or food. However, the application of this type of procedure necessitates considerable care. Presenting a feared object, e.g., the rabbit, in such a manner that the fear response, and its attendant avoidance reactions, is initially stronger than the competitive, desired response may result in the attachment of fear to the previously desired object, e.g., the candy. Careless handling can thus extend the fear to other objects rather than eliminate it. In general, this reconditioning, or retraining, technique can be used only with tangible concrete objects that are feared.

The fear of intangible things such as ghosts, the dark, supernatural influences, death, and the like is more difficult to eliminate than the fear of concrete objects. Much can be done by exploring the dark with children so that they can learn there is nothing to fear. Constructing or acting a ghost with the child's active coöperation, or in some other way making his idea of these intangibles more concrete and more associated with what he experiences as a harmless object or situation, is a useful procedure.

The management of anxiety is more difficult than that of specific fears. When the reaction is intense, as in the case of anxiety attacks, the immediate therapeutic aim is to bring about syptomatic relief. According to Kanner (*5*), "calm and authoritative reassurance" shows amazingly prompt results in such cases. He asserts that—judging from follow-up studies up to 15 years later—sometimes even one interview results in apparently permanent cessation of attacks. In most cases, the use of reassurance alone is not enough to correct the problem for it is directed at the symptom and rarely affects directly the underlying reasons for the anxiety. Nevertheless, reassurance does tend to reduce aggravating influences that add to the anxiety. For example, the unemotional statement that the child's condition has been diagnosed incorrectly as cardiac illness and that there is no impairment of the heart contrasts sharply with the concern expressed by the parents, and the child is usually greatly relieved. Reassurance means more than the appeal to accept the greater knowledge vested in authority. Reassurance gives the child support and strength to face the unknown, impending danger; it gives him a stronger, and wiser, ally—someone who will protect him from harm.

When the anxiety is diminished, a thorough search must be made for possible factors in the experience of the child which are associated with anxiety. The therapeutic aim at this point is to determine the effect of influencing conditions and interpersonal relations upon the formation of conflicts or other factors which evoke anxiety. When the child's conflicts are resolved, when the underlying reasons for anxiety, whatever they might be in a particular child, are removed, the anxiety will be greatly reduced and its symptomatic expressions will vanish.

Although problem anxiety is an emotional reaction which is not associated with an object, it is, like fear, based upon the experiential history of the child. It is an admission of the inability to tolerate frustration or resolve conflicts. In children, as in adults, it shows the helplessness associated with a lack of learning. When anxiety has reached the problem stage, the child requires a great deal of reassurance, support, emotional warmth, and acceptance in order to enable reduction of the anxiety and permit new learning to continue. Whenever possible, the conditions resulting in severe deprivation—particularly deprivation of affection—should be altered to compensate for this deficiency; and the sources of excessive, or persistent, frustration and conflict should be removed. It is hardly possible, however, to prevent entirely the occurrence of conditions which may arouse anxiety. The child therefore should be helped to learn different ways of reacting to his anxiety when it is aroused. Direct counseling with older children and play therapy techniques with younger children can be utilized to motivate more effective responses to anxiety-provoking situations. The most important ingredient in the treatment situation is probably the relation between child and therapist. It not only provides a condition that lessens the child's anxiety but also actively encourages, and at times demands, different reactions by the child. Judicious reward by the therapist enables the selection and the establishment of the reactions which are considered to be the most effective (that is, socially desirable and personally satisfying) in situations evoking anxiety. This manipulation of the therapeutic relationship cannot be mechanically employed; it necessitates, as in the learning involved in all interpersonal relationships, a sensitivity to the subtle components which must constantly be exercised.

"NERVOUS" HABITS

Many children habitually perform specific acts which alarm their parents. Certain of these motor habits are limited to quick, involuntary movements of circumscribed muscle groups, while others, of a more voluntary sort, usually involve much more widespread action. The first group are known as "tics"; the latter are usually categorized as "body manipulations."

Although such habits are commonly considered to be symptomatic of "nervousness," Olson (*148*) has shown that habits of this sort occur in practically all children. In his study of 467 children in the first to the sixth grades, only one boy did not exhibit some form of this behavior during the observation period. Olson devised the following classification of these "nervous" habits:

1. Oral: sucking thumb or fingers, biting nails, protruding tongue
2. Nasal: picking, scratching, or wrinkling nose
3. Manual: picking fingers, writhing hands, clenching fists
4. Hirsutal: pulling and twisting hair, scratching head
5. Aural: pulling and picking ear
6. Irritational: scratching body

7. Ocular: rubbing eyes, blinking eyelids, winking
8. Genital: manipulating genitalia, rubbing thigh
9. Facial: grimacing, twitching muscles

An analysis of the data in this study showed that the oral and nasal habits accounted for 82 percent of all those observed. It also indicates that the frequency of these habits does not decrease with age, and also that girls exhibit more of them than do boys, particularly at the younger ages.

Olson made no particular distinction between body manipulation and tics, but in clinical practice these two should not be confused. Kanner (*5*) has outlined differential characteristics. He says: "Tics or habit spasms are sudden, quick, involuntary, and frequently repeated movements of circumscribed groups of muscles serving no apparent purpose." Each attack is practically identical with every other one. The onset of each attack is sudden and once started cannot be interrupted. In contrast, the habitual manipulations of the body are not involuntary automatisms, although they may be indulged in without full awareness. Their course may be of long duration, the onset is slow, and they may be stopped at any stage. These performances are purposive and pleasurable in themselves, whereas tics have lost any such characteristic.

In children, tics tend to be multiple and less definitely localized than in adolescents and adults. Boncour (*42*) reports that 417 of 1759 children between two and thirteen years of age exhibited tics. Meige and Feindel (*135*) and Boenheim (*41*) both demonstrate that the peak of the onset of tics occurs at five or six years of age and that tics do not occur in infants.

Most descriptions of children exhibiting tics indicate that tension associated with anxiety is a basic factor. O'Kelly and Muckler (*147*) point out that, with anxiety, "there is often a state of increased tension in the striped or skeletal musculature, due to increased metabolic activity." There appears to be general agreement concerning the importance of underlying tension and the acceptance of tics as a symptom of "nervousness." Mahler and Rangell (*128*) point out that the age of most frequent onset coincides with the age at which the child is being forced to make adjustment to the wider social world of the school. Walsh and Foote (*192*) say, "Almost any normal movement may, in nervous children, come to be repeated so frequently as to become a tic." A temporary local irritation, e.g., of the eye, ear, or mouth, tight clothing, irritating infections, etc., may initiate a perfectly normal response which is continued until it loses its purposive character and results in the involuntary behavior called a tic.

Studies have shown that the home atmosphere of children with tics is one of emotional tension. Latimer (*114*) found that in these homes tenseness, quarreling, and perfectionistic standards were common. He noted that the parental attitudes showed overindulgence, infantilization, and compensatory overprotection. Thus children manifesting tic behavior often appear to be reacting to overprotective and restrictive parental controls.

As indicated by the list of "nervous" habits given earlier, body manipulations may take a variety of forms. The most common are probably thumb sucking, nail biting, and masturbation. The last of these will be discussed in the next chapter.

The thumb-sucking habit is common among infants, and probably at this early age occasional sucking of the thumb should not be considered a problem. According to Levy (*118*), in a small number of cases, the habit may be congenital. More often its origin is closely associated with the infant's original feeding methods, i.e., sucking at the breast or bottle. Each nursing period begins with the child tense and restless because of hunger. As the nursing continues he becomes relaxed, and after a fully satisfying meal he is sufficiently relaxed to fall asleep. If for some reason—physical condition, inadequate diet, hurry, or emotional disturbances—the child is not fully satisfied, he may suck his thumb or fingers, which apparently continues some of the satisfaction of nursing, until he has fallen asleep. There can be nothing seriously undesirable about this form of behavior, provided it does not become chronic. But if the child's feeding is not entirely satisfactory there is the danger that each period will so frequently be followed by thumb sucking that the undesirable act will become thoroughly habitual. Morgan (*139*) suggests that the most frequent reason for thumb sucking becoming chronic is the worry exhibited by parents over the habit. They attempt to correct it by taking the child's thumb from his mouth or by using various mechanical contrivances designed for this purpose, without making any attempt to correct the underlying nutritional cause.

Until two years of age or so it is probably wiser for parents to make sure of the child's diet and not to be concerned with spasmodic thumb sucking. If the habit, in older children, persists, it should be corrected. When this habit, as is more usual with older children, is only part of an undesirable behavior pattern, the improvement of the total picture will result in elimination of the sucking.

Another widespread habit, among adults as well as children, is nail biting. The onset is usually after three years of age. Wechsler (*194*) observed over 3000 school children in all grades and found an increase in incidence with age which he felt paralleled the stages of sexual development of the child as put forth in psychoanalytic theory. More recently, Malone and Massler (*130*) observed the frequency and severity of nail biting in 4587 students between the ages of five and thirteen. The overall frequency in their group was somewhat higher than that which Wechsler reported 20 years earlier. In this study, "the present group of children . . . began to bite their fingernails earlier; more children bit their nails at every age period and the number of children biting their nails reached its peak earlier."

Wechsler considered nail biting a form of masturbatory activity. However, Viets (*191*) found that nail biting was not associated with masturbation in a group of nail-biting clinic cases which she compared with a group of nonnail biters. She could find no difference in intelligence or physical condition; the nail biting did not seem to be associated with any pattern of problem behavior; and the nail biters did not seem to be essentially "nervous" children.

Viets did find a greater frequency among the nail biters of situations indicative of tension in the home. Kanner (*5*) found that nail biting was associated in his cases with other indications of tension in the child. Billig (*35*) related nail biting to tension or excitement associated with fear, suspense, or frustration.

Body manipulations other than thumb sucking and nail biting occur with a great deal less frequency than the foregoing. Sucking the tongue or lips, biting the lips, picking the nose, pulling the ear or hair are all found. Usually they are part of a manipulatory pattern which may be indicative of underlying tension. Sometimes any one of them may be due to a local irritation.

Correction

Scolding, nagging, or otherwise attracting attention to "nervous" habits hinders rather than helps in their elimination. All possible physical conditions which could be a source of irritation or difficulty should be improved. Where tics are involved, the examination must make sure that the condition is not due to certain neurological conditions such as general hypermotility, chorea, or athetosis which may sometimes be confusing. Differential diagnosis (*149*) in such cases must be left to the physician.

Corrective procedures utilizing restraint or bitter-tasting applications are not indicated for nail biting or for thumb sucking. The treatment of these and other forms of undesirable motor habits must be directed toward the child rather than toward the symptom. Since the general underlying factor is usually tension or anxiety, the therapeutic efforts must be concerned with the alleviation of the tension which involves treatment of the total personality.

Where anxiety-provoking situations occur in the school, an attempt must be made to promote the teacher's understanding of the child's problems. When marital dissension adds to the tension existing in the home and the child feels misunderstood or neglected, or is used as the pawn in the parental strife, correction of the nervous habit will, in part, depend upon a lessening of the tension in the home. As is so often the case when anxiety is an underlying reason for the child's difficulty, correction of the problem necessitates treatment of the home. Consideration of the child as an individual isolated and apart from the home is likely to yield disappointing results therapeutically since this does not remedy the conditions which are so important in the development of the problem.

AGGRESSION AND HOSTILITY

The problem of the aggressive child is one with which not only the clinical psychologist is concerned. It is of sufficient magnitude to concern our entire society. The socially aggressive child, labeled the juvenile delinquent, is considered elsewhere in this volume. Our interest here is in the aggressive, hostile behavior of children who do not come to the attention of the juvenile courts but who are brought to the clinical psychologist or psychiatrist.

Hostility is not always exhibited as physical violence directed toward other people. It can be manifested in numerous ways such as overt aggression, anger, sullenness, jealousy, destructiveness, and so on. Parents complain that the child cannot get along with other children, hitting and kicking them; that he has temper tantrums when he cannot have his own way; that he is sullen or sarcastic; that he cannot be trusted with his siblings because he might harm them. Usually, investigation reveals that fears, restlessness, nail biting, and other symptomatic behavior are also present.

Aggression has received much attention from many theorists. In his earlier writings, Freud (*82*) regarded aggression as the basic reaction to the blocking of pleasure-seeking or pain-avoidance activity. At a later date (*83*) he viewed aggressive impulses as manifestations of an innate, destructive drive, i.e., the death instinct. His latter views stimulated a great deal of controversy, even among proponents of psychoanalytic theory, but the frustration-aggression hypothesis has received wide acceptance both in theory and in clinical applications.

Dollard, Doob, Miller, Mowrer, and Sears (*65*) proposed an invariant relation between frustration and aggression. They systematically analyzed the effects of the amount of frustration, the inhibition of aggressive acts, the displacement of aggression, and the reduction of instigation to aggression. Self-punishment is regarded as an aggressive reaction. Rosenzweig (*173*) also relates the hostility to the frustrating agent. Aggression is directed to other persons or things when the frustration is attributed to them. When the individual attributes the frustration to himself, the aggression is directed against himself. In addition, Rosenzweig asserts that one kind of response to frustration is not motivated by aggression and takes the form of a denial of blame, whether of others or of self, with the attempt to "gloss over the frustrating situation."

Since frustration is generally regarded as an important factor in eliciting aggressive, hostile behavior, it is equally important to note that every child, normally and inevitably, experiences frustration to some degree. In learning the modes of behavior and attitudes expected in our culture, young children cannot escape the interference and control by adults. Children must continually modify their behavior in accordance with parental demands, and these are often arbitrary. The habits learned in breast or bottle feeding are interrupted. The infant is deprived of the bottle or the breast and must change to drinking rather than sucking. When solid foods are introduced, the child must learn to chew. It is expected that children will learn to like the foods which are conventional in our culture. The discrimination of edible and inedible objects is fostered by removing inedible material when the child puts it into his mouth.

The young child is not allowed to go to sleep when he wishes but must conform to a definite, prescribed pattern of sleep. Waking up during the night and playing is interfered with by parents who wish to establish good sleeping habits in the child, and who resent being frustrated in their own desire to sleep the night through. A child's explorations of his genitals, or frank masturbation, is quickly blocked as undesirable activity. Cleanliness is enforced. The child's wetting and soiling himself brings immediate interference. During the course of a typical day, a child is constantly beset by adult admonitions and prohibitions. Countless examples can be found in every area of behavior. Since guidance of the development of approved behavior necessitates the interference and blocking of undesirable acts, innumerable frustrations are in store for every child.

The frustrating agent—the barrier to the gratification of the child's desires—is not only the parent, teacher, policemen, sibling, or other person, but also the child himself. The child who cannot run so quickly as his friends, or who wants to jump rope when he can barely run; who is weaker than his brother or cannot read as well may blame himself for his failure to reach the goal, and turn his aggression in upon himself. When direct aggression against the frustrating agent is inhibited, the hostile reaction may be directed toward something or someone else.

From her studies of aggression in children, Bender (*27*) concluded that the major factor is deprivation. She traces the origin of aggressive action to the exploratory behavior of the child. In order to determine the texture, consistency, and durability of an object, the child must literally tear it to pieces. Hugging, punching, and touching other persons are considered to be exploratory phases which precede social behavior. However, the child early experiences punishment for aggression which tends to inhibit further aggressive reactions. She further states that when children are deprived of love, support, or food, they interpret the deprivation as an aggression "with destructive tendencies," and they respond with aggression. She thus regards aggressive behavior as a reactive response to the aggression (deprivation) of others.

Anna Freud (*81*) has described how pathological aggressiveness in children is related to a condition of deprivation of emotional satisfactions. Emotional development is arrested in these children and they exhibit uncontrollable destructive behavior towards toys, clothes, furniture, and animals, intentionally harming other children, and showing defiance toward adults. According to Anna Freud, aggression in children is instinctual. When the means for control, or mastery, of the aggressive urges are not acquired, aggression is released in a direct, unbridled form.

Podolsky (*157*), in his study of jealousy and its relation to hostility, stresses the importance of deprivation in the development of such behavior. He notes the reactions occasioned by physical disabilities and abnormalities, illness, and similar conditions which result in the deprivation of social approval, parental affection, and achievement.

Anger

Anger is one reaction to interference or frustration of the child's activity. As with all emotional behavior, anger may be a constructive aspect of human behavior. The aim of child training should be to control and socialize emotional reactions, not eliminate them. Thom (7) has pointed out that anger reactions take two forms: first, the active motor and vocal reaction called temper tantrums; and second, sullenness and moodiness.

In a study of anger in a group of 45 children ranging from seven months to about eight years in age, Goodenough (*90*) found that the behavior picture changed with age. Three-quarters of all outbursts recorded in children under three years of age were primarily displays of undirected activity such as kicking, stamping, jumping, holding the breath, stiffening or making the body limp, crying, screaming, and so on. Some 66 percent of all outbursts for both sexes and for all ages involved behavior of this sort. Resistant behavior, such as turning the head or body, refusing to swallow, running away, occurred in 44 percent of the outbursts with no significant variation between the two sexes or in different age groups. On the other hand, the third type of behavior exhibited—retaliative—such as calling names, grabbing, biting, throwing objects, threatening, etc. showed a definite tendency to increase with increasing age. Of all the outbursts of anger studied, fewer than one-third lasted as long as five minutes.

Temper displays are a frequent problem presented by children referred to clinics. Data by Ackerson (*10*), Kanner (*5*), and Goodenough (*90*) suggest that temper tantrums are probably of slightly greater frequency among boys than among girls. It has been found that tantrums may occur at any age, but Ackerson (*10*) and Goodenough (*90*) both found a consistent decrease with increasing age.

It can be said that anger outbursts are uncontrolled emotional reactions which are always precipitated by a real or imaginary interference with, or hindrance to, present activities or planned future activity, and which probably occur to some degree in nearly all children. This does not, however, explain why some children exhibit frequent tantrums while others seldom do, or why the same child may be quick to anger on one occasion but not on another. Since interference and frustration are unavoidable, the existence of temper tantrums indicates a failure to learn adequate emotional control or the deliberate use of such behavior to attain something the child wants. As with most other forms of behavior difficulties, a major factor in its development is to be found in the training and attitudes of the home. In the very young child, or occasionally in all children, anger outbursts need not be taken too seriously. Adequate emotional control is not expected in the very young child who has not yet had sufficient time to develop such control. Uncontrolled emotional outbursts are problems only when, from their frequency in an older child, it is evident that he has not learned to control or inhibit his infantile reactions so that his behavior conforms reasonably to the community norms.

The influence of the home is seen in the inadequate handling of temper outbursts. Even the infant soon learns that he can gain attention by crying angrily, if the mother meets such action by satisfying his every whim. Bribing, giving in to the child's demands, diverting his attention, substituting a new activity, removing the cause of the trouble, ignoring the behavior, and isolation were found by Goodenough (*90*) to be useful in terminating outbursts. However, children whose parents met the issue by giving them their own way had more frequent outbursts. Children whose parents handle tantrums unwisely have outbursts of anger to secure their own way, to secure attention when they feel they are neglected, or because of jealousy. Parents who satisfy the child's desires because of his tantrums are laying the foundation for frequent, habitual spells of anger which may remain part of his behavior equipment even in adult life.

The home also influences learning by providing models for imitation. The excited, loud-speaking, angry father or mother; the nervous, fussy, inconstant mother; the drunken, brutal father, all present models for the child's anger, or situations ideal for its arousal. Frequently, the parent's unthinking interruption of a child's play or plans is also a reason for temper display. Often the brief resentment at being interrupted is justified because the parent has failed to consider the child's rights. But if such interference persists, the child may learn to respond to any and every direction with temper and refusal. There can be little doubt that the most important reasons for the development of temper tantrums or any other form of anger behavior as a consistent part of the individual's behavior pattern lies in the influences of the home and the parents.

Physical conditions are frequently causes of increased irritability, and consequently any physical abnormality should be corrected. According to Goodenough (*90*), temper outbursts were much more frequent when the child had a cold or was constipated or fatigued, or when it was almost time to eat.

Jealousy

Another problem involving hostility which is frequently encountered in the clinic is jealousy. The jealous child may exhibit almost every form of undesirable behavior, from whining, crying, irritability, to stealing, fighting, or intentional injury to the rival. Jealous children have been described as restless, eccentric, peculiar, unsocial, timid, lying, high-strung, nervous, and so on. Temper tantrums and inferiority feelings have been associated with jealousy. Foster (*78*) compared a group of jealous children with a group of nonjealous children. She found that the traits listed as special attachment to parents, favoritism shown, cruelty, sleep disturbances, hyperactivity, leads playmates, and playing with other children occurred twice as frequently among the jealous children as among the nonjealous ones. She also found that selfishness, pugnacity, and attention-demanding behavior were much greater among the jealous children. On the other hand, only lacking confidence and daydreaming were two or more times as frequent among the nonjealous children.

In a study of jealousy in children, Ross (*174*) found negativism much greater in jealous than in nonjealous children. She also concluded that there was a decrease of jealousy in children with increase in age, with the greatest frequency occurring in children three years of age and under. In addition, there was a slight increase in jealousy with increase in I.Q. Smalley (*178*) found an increase in jealous attitudes with increase in difference of I.Q. between siblings. Studies by Foster (*78*), Smalley (*178*), Sewall (*176*), and Ross (*174*) have shown jealousy to be more frequent among girls than among boys.

The usual dictionary definition, that jealousy is apprehensiveness of displacement by a rival, aptly states this condition as it is found in most children. The definition indicates that jealousy involves fear. Podolsky (*157*) says the jealous child is envious and frustrated. He is frustrated because his desires are being blocked, he cannot attain what he lacks, he feels he is being neglected, or he feels he cannot get what he should have. The background of jealousy always includes interference, usually by another person, with the ordinary progress of the child's life. Attempts to avoid this interference, or to destroy it, constitute jealous behavior. The child's behavior can usually be shown to be related to attempts to injure the interfering person or thing, or to attract attention, which he feels has been diverted from him but which is rightfully his. Ordinary behavior with known privileges and opportunities is more desired by the child, and if there is interference with such behavior it means insecurity and its resulting anxiety.

Levy (*119*) studied sibling rivalry in young children with the use of an amputation doll (which can be dismembered) representing the mother, a small destructible, celluloid doll for the baby, and a larger doll for the older sibling. He found several kinds of jealous reactions. Direct, aggressive behavior was expressed by destruction of the baby, the mother, or the mother's breast. Another reaction was to substitute the older doll for the baby at the mother's breast. Yet another response was to take the baby away from the mother doll and give it into the older doll's "care." Self-punishment for the feeling of hostility was expressed in the destruction of the larger doll.

The situation most frequently mentioned as a reason for jealousy is the introduction of a sibling into the household without any warning to, or preparation of, the older child. Adler (*12*) believes that jealousy is nearly universal and that it usually begins with the birth of a younger child. However, Sewall (*176*) found that preparing the child for a baby's coming had no relation to the arousal of jealousy. It is likely that it is not the tiny infant who may provoke jealousy but the older child who can more definitely interfere in his still older sibling's activities.

Favoritism and unfavorable comparison between siblings are probably a more significant condition leading to jealousy. Ross (*174*) found that unfavorable comparisons were twice as frequent in the homes of jealous children as in the homes of nonjealous ones. Attitudes of favoritism in relation to the children are part of the picture of defective discipline or familial maladjustment. Foster (*78*) contrasted the homes and parents of jealous and nonjealous children. She found that a lack of opportunity for social relationships, rule by punishment, and teasing by parents, relatives, or siblings apparently favor the development of jealousy.

In her study, Sewall (*176*) concluded that sex, intelligence, or warning of a coming baby have little effect on the development of jealousy; differential in age, number of children in family, and poverty may have some relation; "but the overwhelming cause of jealousy seems to be lack of consistency in discipline, and this is closely linked to other factors that point to familial maladjustment."

Destructiveness

When hostility cannot be expressed toward a person, it may be displaced to objects which the child destroys. However, not all complaints of destructiveness in children are related to personality difficulties. The preschool child is constantly exploring, and experimenting with, his environment. This may lead him to take his toys apart, or to cut things in an effort to find out how they are constructed. All too frequently parents complain of the child's destructiveness when he is satisfying his curiosity and is not being wilfully destructive. The solution for this sort of destructiveness is to supply the child with toys that he can take apart without injury, with toys for building, or with an old clock or other worn-out mechanical instruments. There will then be no occasion to destroy valued family property.

Destruction of toys or other playthings also frequently accompanies an overabundance. When there is an overabundance of toys, particularly mechanical toys, the temptation is great to take them apart in order to see what makes them go. And a few may still remain untouched.

Undesirable destructiveness in young children is associated with a lack of training in values, with selfishness, and, as previously stated, with personality disturbances. Children have no inherent understanding of the value of property, or the relative values of different properties. The development of such appreciation is one of the aims of child training.

Correction

All children having problems which involve aggression or hostility have failed to learn acceptable, desirable means of handling their aggressive reactions. Prevention of aggressive behavior is more easily accomplished than correction. But prevention does not necessarily mean smoothing the path of the child so that he is never frustrated, is never prevented from obtaining immediate satisfaction of his desires, or is never deprived of anything. Such extensive control of development in a child's life is obviously impossible. Undesirable aggressive behavior in response to interference, frustration, or deprivation can be prevented by helping the child to learn ways of meeting such conditions which are socially acceptable and not damaging to the child himself. The child must learn to tolerate frustration, at least to the point of withstanding the frustrations inherent in everyday life. He must learn to accept delay in the satisfaction of many desires and needs. He must acquire substitute satisfaction for the gratification which he is denied.

The clinician, in attempting to correct problems of aggression, is faced with the task of reducing unnecessary and unreasonable conditions of frustration or deprivation, helping the child to develop a tolerance of "normal" frustration, and guiding the child in the acquisition of means of satisfactorily coping with these conditions in a desirable manner. Rosenzweig (*173*) points out that, although frustration tolerance may be determined in part by innate endowment "as manifested in nervous, glandular, or other somatic function," early training, "both informal and formal," is an important determinant of such tolerance.

It is obvious that, both in the development of the capacity to withstand interference and in the attainment of control of aggressive tendencies, the home and the parent-child relation are extremely important factors. In order to effect changes in the child's behavior, conditions must be altered to make them conducive to learning desirable habits and attitudes in regard to aggression. This implies that parental attitudes in regard to handling the child must be changed. Admonitions to the parents to "show more affection" toward the child—on the thesis that aggression is the product of emotional deprivation—are likely to be ineffective. Protestations of love and affection by basically rejecting parents are apt to be unconvincing to many aggressive children. Also, evidence has been presented by a number of workers in this field that, as Bettelheim (*33*) puts it, "love is not enough." In addition to affection, the aggressive child must acquire techniques of control. From his experience with extremely aggressive children, Redl (*163*) concludes that they suffer from deficiencies and maldevelopment of their "ego control systems" and need help in establishing adequate behavioral control. He points out that, in some instances, these children reject affection which is freely offered to them, showing a fear of love. In these cases, he says: "Love coming from adults . . . constitutes a threat to their whole adaptation system, which is built on primitive self-love."

In order to determine what specific conditions exist in the home to arouse or aggravate aggressive reactions in the child, the clinician must obtain a clear picture of the parental attitudes toward the child, the situations in which aggressiveness is expressed, and the parents' techniques of handling the child—particularly in regard to the aggressive behavior. Although the term "aggressive child" has been freely used, some doubt exists as to whether the term is a justified generalization. As Bender (27) points out, aggressiveness occurs in specific situations. The child who clearly expresses his hostility in school may be quite docile at home. The child who physically assaults his sibling may show little tendency toward such reactions with his playmates. Determination of the kinds of situations in which the aggressive behavior occurs will provide clues concerning the nature of the conditions which provoke aggression in the child and permit him to express it. In addition, relating the manner in which the aggression is expressed to the situation will aid in understanding the problem in the particular child.

In the handling of temper tantrums, the parents must recognize outbursts of anger for what they are and learn to deal with them wisely. Parents should understand the manner in which emotional control develops and not demand control of emotional behavior which is unreasonable for a particular developmental age. After any possible aggravating physical condition is corrected, the parent should maintain a stable, quiet, unemotional "climate" in the home.

Concern over the outcome of a tantrum, even though it includes breath holding, head banging, or other spectacular acts, should never be shown. As soon as the child recognizes that the parents are worried, he has discovered that it is only a matter of time before he will gain his end. Exhibition of alarm and concern over the child is a frequent reason for establishing and maintaining the tantrum behavior. Unless the child has a serious organic disability, the chances of harm resulting from a tantrum are negligible. If there is danger of him hurting himself with or destroying objects in a room, he should be put in a safer place. Coaxing, reasoning, and cajoling mean nothing to the child who is in a rage; yelling and beating serve no useful purpose. The effective way of dealing with a tantrum is to ignore it. The attack should be allowed to spend itself. If it upsets the parents and they cannot "stand it," they should leave the room. Regardless of their fears, the neighbor's objections, or well-meaning advice not to cross the child, parents should not permit the child to get what he wants by means of a tantrum. Every time he does so he strengthens this very undesirable form of behavior and, conversely, delays his learning of emotional control.

For a child referred to a clinic as a problem because of temper, corrective measures must attack his physical condition, undesirable home conditions, and his own habit patterns. Kanner (*5*) wisely warns against "rest cures," sedatives, and diagnosing the condition as caused by nervousness, because such measures do positive harm by establishing the conviction that the child is suffering from a "disease," which the parents then expect the doctor to cure.

When temper tantrums are accompanied by other symptomatic behavior such as fears, enuresis, nightmares, etc., they should not be considered as merely due to lack of training. Correction will necessitate treating the underlying difficulties and the related home conditions.

In dealing with jealousy in children, one question must be clearly answered. Does the child have a real reason for being jealous, or does his jealousy rest on his own beliefs which do not have a real basis in fact? If there is a real basis for his jealousy, primary measures must be aimed at correcting the conditions which exist. Methods of parental discipline must be improved. The parents must be convinced that favoritism is to be avoided. Older children must be prepared for the baby's arrival. If there does exist an objective basis—in the home, school, or elsewhere—for the jealousy, for which there can be no correction, then the child must be taught to meet that situation.

When the reason for jealousy lies largely in the beliefs and attitudes of the child, we should expect to find further evidence of personality distortion. Corrective measures should be directed at the personality as a whole. The child must be shown that what he believes is an injustice, or favoritism, on the part of his parents or teachers is, in reality, not true. He must be shown that he has not been supplanted or his prestige lessened. Anxiety stemming from imagined personal defects or inadequacy must be lessened and the child must be aided in getting an undistorted perception of his relations to his parents and others.

In the home, situations which may arouse jealousy should be avoided. Children should be trained to share their possessions, to take turns, and to respect the rights and property of others. On the other hand, it is hardly fair always to expect the older child to give way and to give things up to the younger child just because he is younger. Parents should be fair with all siblings, and should not interpret mild disagreements over possession of a toy or similar object as undeniable evidence of jealousy. The learning of desirable sibling relations—as well as other social behavior—requires time and calls for patience on the part of the parents.

In all problems concerned with aggression, the clinic should provide the opportunity for the child to expel his hotility vicariously, thus lessening the associated tension. Play therapy with dolls, clay, and other media is effective for this purpose. Other play material, such as punching bags, can help to serve the same purpose in the home. However, more than catharsis is needed. Positive measures to instill satisfactory habits of meeting frustrations, inhibiting aggressive reactions, and substitute satisfactions for unavoidable deprivation are the major corrective tools.

AVOIDANCE PROBLEMS

The child who has experienced pain in connection with a specific object such as a burning match quickly learns to withdraw from the cause of the pain. When a child has developed a fear of something, he avoids the fearful object. However, when a child reacts with anxiety which he cannot connect to any particular thing, escape from, or avoidance of, the anxiety is more difficult. Any behavior which successfully lessens the discomfort may be established as a readily evoked response whenever anxiety is aroused. Unwholesome means of avoiding anxiety frequently develop into habitual reactions which form the basis of serious personality disorders. Such undesirable means are illustrated by any activity which prevents a constructive attempt to meet and solve the problems of living, which tends to isolate the individual from adequate interaction and communication with other people, which tends to insulate an individual from stress by enlarging his "private world" to the point where external realities cannot effectively compete with internal stimulation. To some extent, every child may utilize such avoidance in response to a definite danger, a vague threat, or anxiety. To some degree, every child resorts to fantasy, to the seclusion of his "private world," to social withdrawal, and successfully obtains some satisfaction while escaping unpleasant realities. It is the frequency and extent of these activities which determine whether they are normal or are problems of behavior.

Fantasy

Many terms are commonly used to indicate imaginative activity. Daydreaming, brooding, reverie, building air castles, musing, being in a study, woolgathering, introspection, and similar terms are descriptive of fantasy behavior. Perhaps the commonest means used by children to express fantasy is imaginative play.

Daydreaming is also extremely widespread. Smith (*179*) found that only about 0.05 percent of 1475 subjects, ranging in age from seven years to adult, were unable to recall experience of daydreams. Conklin (*53*) found that 69 percent of 295 college students reported daydreaming frequently. The high frequency of such activity indicated by these studies does not minimize the problem aspect of fantasy for, in most people, daydreaming is infrequent. Although most people daydream occasionally, it is not habitual behavior and rarely is an end in itself. When daydreaming is not used as a means to an end but becomes a preferred activity which interferes with behavioral adjustment, it constitutes a problem.

The content of the daydream is influenced by external environmental conditions and by developmental changes. Green (*92*) has analyzed children's daydreams, and has come to the conclusion that they mirror the child's development. Between three and ten years of age the dream contents have a major reference to self—the child gets the wanted toy, or mountainous cakes and seas of lemonade are his. In the prepubertal period, from ten to fourteen or so, the reference is mainly to a group attitude. Our team wins the game; our gang is victorious over the gang on the next block; our school, club, even family is dreamed about as accomplishing greatly desired ends. In this period also there occurs a seriously disturbing sort of fantasy—that of not belonging to one's family. Conklin (*52*) and Lehrman (*116*) have explored this foster-child fantasy and found that it occurs in children of all classes and takes a variety of forms. The child may believe himself a waif or an orphan; that he is really the stolen child of wealthy or royal parents; or that he is really the child of inferior parents. During adolescence and adulthood, the content takes the form of romantic episodes. Pruette (*159*) found among over 300 adolescent girls that daydreams of personal success and romance occurred much more frequently than any other type. McKaye's study (*126*) of 244 high school pupils substantiates the self-reference of girls' daydreams. O'Kelly and Muckler (*147*) point out that "although the motivational sources of fantasy do not change in kind through the developmental period, the difference in content reflects differences in the types of problem faced at the different age levels."

In emotionally disturbed children, the content of fantasy varies greatly. Bender (*27*), in studying the fantasy material obtained from a group of children who had set fires, found a mixture of aggression, destructiveness, anxiety, and self-punishment. Investigation by Bender

(*27*) of children who threatened suicide, were obsessed with fantasies of suicide, and who actually attempted suicide, led to the conclusion "that they were threatened by turmoil both from within themselves and their outside situations which became increasingly difficult." These threatening situations were mirrored in the content of their fantasy.

Fantasy may have different functions for the child. It may serve as a means of planning and be constructive in character. When imagination is utilized in this manner, it is generally considered to be a form of "creative thought." The child may also use fantasy as a means of reassuring himself of his capacity to deal with frightening situations. Thus the child who has been taught to fear automobiles as dangerous objects may vigorously manipulate and control toy cars, making them collide and "undoing" the collisions, thereby gaining confidence in his superiority and control of the threatening situation. Bender and Vogel (*31*) show that young children may use fantasy to modify painful or fearful experiences. The child frequently resorts to fantasy as a tool for learning how to deal with strange or frightening incidents. Because in imagination the child is not bound by reality, fantasy is an easily available means of overcoming frustration and experiencing the satisfaction of achievement. The compensatory characteristic of fantasy is frequently obvious both in the home and in the clinic. In a given child, the daydreaming may be a means of escaping from an unpleasant reality; in another it may be a way of simply filling time and alleviating boredom; in yet another it may be a means of modifying and reducing fear.

Daydreaming is a form of the normal imaginative processes and is subject to the same influences which determine all behavior. It is motivated behavior which is modified by the child's experiences and which, under the proper conditions, can be established as a habitual activity or can be lessened and replaced by other activities. Frustration, boredom, or loneliness tend to stimulate fantasy. Anxiety motivates fantasy. Boredom may be the result of a drab, uneventful home which offers no stimulation in the child's interests or activities. In school, the superior child may be bored because the work is too simple to require much effort; and the dull child may be bored because he cannot grasp the work. The monotony of the classroom technique of some teachers, or of a too rigid routine at home, makes the child's life dull and uninteresting. The ennui resulting from such situations is overcome by dreams, the satisfaction of activity that is absent in real life being found in the daydream.

Similarly, the child who is isolated and has no playmates is bored and lonely. Not having real playmates, he peoples his play with imaginary ones. Such fantasy is frequently vivid so that a child may cry when someone sits in a chair which is occupied by the imaginary playmate. In one instance, a six-year-old girl who had never had the opportunity to play with children of her age formulated a world of imaginary companions. This unreal world became so real to her that for a year after entering school, she would not play with her schoolmates, preferring to play with her daydream companions.

Another frequent basis for daydreaming is the excessive repression of the child as a means of punishment, or when a minimum of activity is looked upon as a desirable standard of behavior. When repressive measures are successful, the child becomes excessively quiet and finds activities in dreams. Unfortunately, the teacher or parent sees in the child's quietness the success of the repressive measures. They praise him and thus foster the continuance and firm establishment of the daydream as an important part of his behavior techniques.

The effect of frustration is essentially the same as that of excessive repression. Don'ts, maternal fears, paternal commands, and unwise parental interference all take their toll of childish spontaneity. Frustration in older children and adolescents is likely to be much more complex. Here the daily experiences, friends, places and things seen, urges, social demands, are woven together to form hopes and aspirations. All too frequently social, economic, physical, or mental factors afford barriers to the attainment of such hopes. Since activity in the desired direction is or seems to be impossible, the next best thing is to dream.

Too frequently, fantasy serves to prevent the child from attaining a solution of his difficulties by withdrawing him from active contact with his environment. In addition, resorting to daydreams enables the continual postponement of effective solutions. Fantasy lessens anxiety sufficiently to be desired as a source of satisfaction. This behavioral technique is so readily available and rewarding that its use is extended to an ever-greater number of problems. In its extreme form, fantasy becomes so prevalent that the line between reality and unreality is a tenuous one for the child.

The details of treatment will vary with each individual case, but the general aim is to help the child find satisfaction in the world and people around him and not to prefer the world of fantasy. Morgan (*139*) has said: "A child who has learned the thrill of real achievement will not spend an undue amount of time dreaming." The therapist should find ways of removing the child's obstacles to achievement and provide the opportunities for rewarding relationships with others. Excessive frustration, when possible, should be minimized. Parents must coöperate by avoiding too frequent intervention in, and restriction of, the child's play. They must learn that constant quiet is neither normal nor desirable in a child. School teachers and administrators must make every effort to make school work interesting and suited to the child's ability. The lonesome child must be allowed to have playmates or, if the isolation is geographic, special efforts must be made to provide opportunity for group activity.

Complaints about daydreaming to the child, sermons, admonitions, and the like, tend to emphasize the inadequate adjustment and foster continued retreat into fantasy. Sympathizing with his fantasies and helping him carry them out will aid the child in keeping daydreams as mere means to an end. The child can be helped to recognize the unreality of his fantasy and should be encouraged to discuss his daydreams.

Active measures to make environmental realities real to the child are necessary. He must feel the reward of accomplishment. All activities must keep him in touch with actualities of his environment. Useful tasks at home or school, trips, companionship of parents, the circus, an occasional movie, a trip to the museum, or any other activity that will require attention to the outward world should be used. Monotonous, repetitive tasks that foster abstraction and do not require either attention or effort should be avoided. The aim of therapy is not to crush and destroy imagination, but to direct it and to make it an incidental and useful part of the child's activity. Successful treatment will enable the child to utilize fantasy as a beneficial form of behavior which will help in the solution of his problems and not further his separation from the world about him. The conditions, whatever they may be, which foster anxiety in the child, must whenever possible be altered to allow the anxiety to diminish. In addition, the child must be helped to learn means of coping with frustrations and conflicts that are more effective than the retreat into fantasy.

Shyness and Withdrawal

As has been noted previously, problem behavior in children is in part a problem because it is disturbing to others. Perhaps one of the least disturbing patterns of behavior, and yet one which may have pathological consequences, is that of shyness, seclusiveness, or withdrawal. Such behavior is generally not regarded as a serious behavior problem, as indicated by parent or teacher judgments of severity of behavior problems. However, it is regarded as an important problem by mental hygienists, psychiatrists, and psychologists. The shy, quiet child does not disturb the classroom or the home and his difficulties are not recognized. But the child who exhibits this pattern obviously has not reached a level of maturity adequate to cope with the demands of his environment, and if the pattern persists he can hardly be expected to meet adequately the greater demands of adulthood.

Table 19, indicating incidences of problems in clinics, includes the entry "Passive, withdrawn, asocial behavior" and shows very different percentage figures for the two types of clinics. These differences probably reflect variations in social attitudes toward this sort of behavior. It is of interest to note that in the cases studied by Martens and Russ (*133*) 42 percent of the problem children and 52 percent of the nonproblem children were found to be shy and bashful. This particular contrast further suggests that children who meet situations by withdrawal are not likely to be thought of as problems. Although shy, withdrawn behavior may present a problem of grave concern, such behavior does not necessarily indicate a predisposition for serious behavior disorders. Morris, Soroker, and Burrass (*140*), in a study of the adjustment of 34 boys and girls subsequent to counseling for withdrawn behavior, found that "on the whole, they were getting along well." In this study, 16 to 27 years later, two-thirds of the group were rated as satisfactorily adjusted and one-third as marginally adjusted.

Shyness or withdrawn behavior is usually considered in relation to social adjustments. As English and Pearson (*71*) point out, the inhibition of social contacts may extend to almost all of the child's social and physical activity or it may affect only a particular part of his daily activities. The child avoids contacts with strange persons and does not participate in group activities even at ages when such activity is common. He prefers to play alone in his own home. The child may show a consuming interest in a solitary activity such as reading or drawing. Nagelberg, Spotnitz, and Feldman (*144*) describe a case of withdrawal in which the nine-year-old girl read about 400 pages a day. The excessively shy child may go to extremes to avoid meeting people, especially those whom he does not know. In one instance, a six-year-old boy would walk down the street with his mother only if she would cover him completely with her coat. Sometimes, when the child meets neighboring children or school companions, he may not even greet them. The withdrawn child may sit for long periods in one place, oblivious to his surroundings, immersed in his fantasy.

In its most extreme form, the individual withdraws so completely that his behavior apparently has little relation to the stimulation of the external world. When this extreme withdrawal is exhibited, it is obvious to the parents, and indeed to anyone else, that a serious problem exists.

Although the child is immersed in a social environment from birth, the degree and quality of social interaction are largely a function of learning. In the early development phases the child is cared for by others, and tends to show little inclination for voluntary social coöperation, lacking the techniques of social behavior. The child of two or three years of age may prefer to play alone, even though other children are present. With increasing age there is normally an increase in social participation. This is observed in play activities and in a greater readiness and ease in meeting social demands in other than play situations. However, this normally expected development of social ease is based upon the assumption that the child has adequate opportunity for interacting with others and forming relationships. The child who is isolated because of geographical conditions, or because of parental demands and restrictions, may acquire an enduring trait of shyness. If the child lacks companions, he is forced to rely upon solitary activities. He may resort to fantasies of imaginary playmates. He relies upon himself as a source of stimulation and satisfaction. Lacking the opportunity for social interaction, the child simply does not develop social skills, has little confidence in his relations with persons outside the home, and avoids the anxiety accompanying ineffective social behavior by withdrawing from social situations. Attempts to eliminate shyness that is largely the result of not having the opportunity to acquire social skills must provide adequate opportunity for learning to occur. Provision must be made for the isolated child to have companions with whom to play; he must be led, not forced, into social situations in which he may find satisfying achievements. Nursery schools at young ages and clubs or supervised play groups and camps at older ages may be used advantageously for this purpose.

While withdrawn behavior may be learned because the environment offers no alternative, it may also be acquired through imitation. Bishop's study (*37*) of the social behavior of children showed how the children in her investigation tended to use the same techniques of influence with another adult that their mothers used with them. A mother's attitude of suspicion toward strangers can be transmitted to the child, who then will tend to be cautious, fearful, or reserved in contacts with others. The child whose parent regards others as potentially dangerous and has little to do with other people may learn to avoid active social contact as much as possible.

In addition to learning by imitation, the child is also influenced by direct parental teaching. Intervention in the child's social activities at home and on the playground by the mother is a common, expected occurrence. Outright aggression tends to be curbed, while coöperation tends to be encouraged. However, the overprotective mother is likely to withdraw her child from a social situation which becomes argumentative or assaultive and in which her child is threatened. The child may be prevented from learning how to assert himself in social situations and withdrawal may be established as an effective means of avoiding frustration in social relations. Lack of confidence, feelings of social inadequacy or inferiority may strengthen social avoidance. Conversely, bashfulness and the tendency to withdraw from contact with others which are due to the lack of training or opportunity in the younger ages, or which result from parental influence and teaching, may be a basis for the development of feelings of inadequacy and inferiority.

Parental attitudes of rejection may produce withdrawal behavior. Newell (*146*) and Levy (*120*) both describe the behavior of rejected children in such terms as detachment, apathy, seclusiveness, and shyness, among others. In these rejected children, the withdrawn behavior seldom appears alone; they show restlessness, dependency, sex preoccupation, anxiety, tension, and even overt aggression. The pattern of withdrawal is important, however, because the difficulty of helping the child increases as the withdrawal increases.

Except in the cases where shyness and withdrawal appear to be mainly the result of the lack of opportunity, a basic underlying factor is anxiety. The withdrawal represents an attempt to avoid or lessen the anxiety by keeping away from the situations, the social activities and relations, which arouse anxiety in the child. Obviously, in these children, the mere provision of social opportunities will not suffice. Corrective measures must be directed toward the total child and not only toward the furnishing of social stimulation which he is not prepared to meet.

Inferiority and Inadequacy

One of the most widespread attitudes that is potentially undesirable is belief in one's own inferiority. The problem of feelings of inferiority or of personal inadequacy has had a great deal of attention in the psychiatric and child psychology literature. The name most frequently associated with this subject is that of Alfred Adler. Originally a follower of Freud in the psychoanalytic movement, Adler presented his own systematic interpretations of behavior based on the motivating force of a "will to power," i.e., an urge toward completeness and normalcy in physical development and achievement. Physical defects, or at least supposed physical deficiencies, thwart this urge and, according to Adler (*12*), result in the child's feeling inferior. Later Adler recognized that insistence on the etiological importance of physical inferiority was limiting, and he therefore attributes the child's feeling of inferiority not only to physical abnormalities or inferiorities when compared to parents, but also to his uncertainty and lack of independence, his feeling of subordination to parents or older siblings, or similar factors.

Recognition of one's inadequacy in various activities is normal and usual. It is the starting point for self-improvement. When, however, the individual feels inferior in most ways to most of the people to whom he comes in contact, and does not make, or appears incapable of making, any attempt to improve and compete, his behavior is socially ineffective and personally unrewarding.

Feelings of inadequacy are felt by probably everyone at some time. For many people they are transient and do not affect the course of their life. In others, such feelings may result in longer or shorter periods of disturbance. In still others, they interfere greatly with the development of adequate behavioral techniques. Conklin (*53*) reported 42 percent of 297, and Gardner and Pierce (*86*) 48 percent of 512 college students as recalling, without hesitation, troubled periods arising from inferiority experiences. Reports of inferiority feelings occurring among problem children vary considerably. Paynter and Blanchard (*151*) found that 19 percent of 167 cases studied in a Los Angeles clinic exhibited such inferiority; the figure for 163 children from the Philadelphia Child Guidance Clinic was 54 percent. Ackerson (*10*) reports that of 2113 white boys and 1181 white girls examined consecutively at the Illinois Institute for Juvenile Research, 202 boys and 62 girls, or 9.5 and 5.2 percent, respectively, were noted as manifesting inferiority attitudes. Correlational analyses of this trait with 120 others leads to the conclusions: "(a) that physical, mental, and social conditions of objective inferiority do not *per se* give rise to inferiority attitudes; (b) that higher intelligence tends to be associated with inferiority attitudes; and (c) that traits or conditions in which social pressure may be operative are more likely to be associated with inferiority feelings." The great discrepancies in these data probably rest upon individual biases in diagnosing inferiority. Such differences are easily understood when the variety in behavioral symptomatology is appreciated.

Conklin (*53*) lists no fewer than eleven "indications of the existence of inferiority disturbances," and Thom (7) divides the behavioral signs in children into four outstanding groups. In considering these signs one is struck with the antitheses between certain of them. In a general way, various symptoms may be grouped into two classes. The first includes behavior that tends to be socially negative and retiring. The second group, in contrast, consists of behavior that is socially positive and aggressive. If the descriptions of Conklin and Thom are combined and classified according to this scheme, we have the following behavioral signs which are of diagnostic significance when they are interpreted in the light of the child's experiential history.

The first group of signs that may be taken as suggestive of inferiority are those in which the behavior quite obviously indicates an attempt to avoid making too extensive social contacts.

1. Self-consciousness as shown by complaints of frequent embarrassment, fear of public appearances or public speaking, self-criticism, and comparison of the self with others.

2. The complaint that the child "never had a chance" or that "other people always get the breaks," that he never has any luck, even in some cases extending so far that others are accused of deliberately thwarting his efforts. We can probably include here the complaints sometimes made by girls, that they wish they were boys and can see no advantages in being girls, and the occasional reverse of this complaint made by boys.

3. Lack of social presence, awkwardness, lack of poise, or any other behavior showing lack of the necessary skills in conforming to the social conventions.

4. Envy of the possessions or behavior of other persons, especially when such envious attitudes are so persistent as to suggest that they are substitutes for efforts to achieve.

5. Timidity and fear of attempting activities which are unfamiliar or in which the person recognizes his lack of skill. Such an attitude probably represents a chronic fear of failure; the individual would rather not try, than to try and fail.

6. Perfectionistic behavior, to use Conklin's terms, which consists in repeating any activity because the person never feels that any given attempt is fully satisfactory. Writing letters again and again, going back to reassure himself that lights or fires are out even though there is every assurance that they are, doing school work over several times for fear of errors, and similar types of behavior frequently indicate inferiority attitudes.

7. Introversion or the tendency toward an introverted point of view. There seems reason to believe that introversion is frequently, if not always, a means of escaping from the difficulties imposed from a sense of inferiority. In a more extreme form of introversion the child may build up a desirable daydream or fantasy world in which he is no longer troubled by his attitude.

The behavior to be included in the second division of possible diagnostic signs does not in itself suggest that the individual feels inadequate or inferior. This behavior is not characterized by avoidance of social contacts. It may in general be considered the result of efforts to compensate for feelings of inadequacy. The individual often goes to extremes to avoid admitting or recognizing these feelings. Instead of submitting to the feeling and showing any of the behavior in the first group, he attempts to cover his underlying attitudes by becoming aggressively evident to the social group. Five rather frequent kinds of behavior may be classed here.

1. Self-assertiveness and feelings of superiority are indicative. The individual pushes himself forward, talks or acts in a loud, attention-attracting manner, acts toward his associates in a superior, overbearing manner. The rough bullying sort of child frequently is an example of this form of overcompensation.

2. Bad temper may sometimes be motivated by inferiority. Decided anger reactions to teasing or other situations which are not usually provocative of emotional response are also significant here.

3. Compensatory activity of a more socially acceptable sort must also be considered. Strict application leading to ultimate superior achievement in almost any field of endeavor—art, music, science, commerce, even possibly athletics—may be the means taken by some individuals to

compensate for, or in some measure to overcome, their inferiority.

4. Thom says that ill health or physical incapacity, especially when there are no pertinent organic findings, may be a means taken to avoid the difficulties imposed by inferiority.

5. Overt delinquency, even of a serious nature, may be a method of compensation.

Inferiority feelings develop only when the child, in comparing himself in any fashion—physically, mentally, socially—with people about him, believes he is not their equal. In point of fact, he may not be, at least in the particular field of comparison. On the other hand, his belief may have no basis in objective circumstances. His ideas may be entirely self-developed, or they may originate and be fostered by the attitudes and remarks of parents or playmates.

Real or imagined physical disabilities are one of the important bases for feelings of inferiority. The child's world is an active one; running, jumping, throwing, climbing, skipping, and active play of all sorts occupy him when alone or in a group. The child who cannot do these things is held, and holds himself, an outsider. He sees himself as—and from the point of view of the norms of the group he is—inadequate and inferior. According to the Adlerian group, the child compares himself with his parents and finds himself lacking in strength and prowess. With his limited experience and inadequate bases for comparison he sees in his physical deficiencies evidence of an inferiority too great to be overcome. He then refuses to try to compete and becomes withdrawn and disturbed by insecurity.

Comparison of mental or academic abilities may have a similar effect. It is doubtful if the child of significantly retarded mental ability recognizes his inferiority and is affected by it. However, children of average or near average ability, in competition with others who are superior, frequently feel that their efforts are hopeless. In turn, feelings of inferiority arise, resulting in behavior pictures such as have been described.

The child with social habits, e.g., colloquial speech, mannerisms, lack of cleanliness, or similar behavior patterns, built up under one set of conditions may, when placed in a new social milieu, find these so different that his behavior is unfavorable when compared with that normal for the group. The other children tease him, attack him, or even avoid or ostracize him. Here again feelings of inferiority develop and attempts are made to withdraw from the disturbing circumstances.

The home environment is also frequently responsible for the development of inferiority. As we have seen, a mother's oversolicitude keeps the child from developing independence, that is, from learning his own ability to do things. Parental requirements of too great perfection make accomplishment almost impossible, and with repeated failures come feelings of inferiority.

We may summarize the reasons for inferiority by saying that this condition always depends upon the actual or supposed impossibility of the child's achieving what appears to him to be desirable. Diagnostic efforts must be directed toward discovering the source of the child's belief. Until this is done attempts at therapy will be sterile.

The child who feels inadequate and inferior is usually an insecure and anxious child. Treatment of this problem involves the correction of the conditions which have resulted in the emergence of these attitudes in the child. Therapy will be directed toward diverting the motivating power of the anxiety into constructive, rather than avoidant, channels of behavior. Whether the condition at the basis of the child's inferiority is real or imaginary will affect the course of treatment. If his physical condition does not allow participation in active play, efforts should be made to teach him to find satisfaction in other directions. Coöperation of all members of the family to this end is most desirable. This does not mean excessively sympathizing with the child or coddling him. Rather, it is desirable that the family relations be as normal as possible, but that the group make a usual practice of engaging in some sort of activity in which the physically subnormal child may participate. The child should be removed from competition in which he has no hope of success, whether it be physical, intellectual, or social.

When there is no objective reason for the child's feeling of inferiority, the first therapeutic approach must be directly with the child. Through exhibition of confidence in him he must be led to establish confidence in himself. Honest praise for work well done or even for real effort cannot be overemphasized. However, insincere praise must be avoided. The child needs experiences of success and achievement. Opportunities for activity should at first be simple enough to assure a successful outcome. As the child gains confidence, the tasks may become more difficult. The child must have the opportunity of achieving so that he may be taught to recognize his own abilities, for only with the development of self-confidence can inferiority be overcome.

Chapter

9

Anxiety and Problem Behavior
(*Continued*)

A NUMBER of the behavior problems exhibited by children are not necessarily based upon the effects of anxiety. In many instances, the problem stems more from the environmental factors influencing the child's behavior than from factors within the child. When the faulty conditions are remedied, the problem behavior can be corrected. For example, a sleep problem, such as wakefulness, may be caused by an exciting home atmosphere at bedtime which is not conducive to sleep. Removal of the home-induced stimulation for continued activity, in such a case, permits the desired sleep behavior to be acquired.

In this chapter, we will discuss several kinds of problems in which the causal factors are frequently found in the mismanagement or inadequate training procedures by the parents. Parental disinterest, ignorance, physical characteristics of the home, and other factors can result in the use of poor training methods.

However, in problems such as the above, anxiety *may* be a primary factor, or may be a contributing factor, leading to the development of the problem. That is, sleep problems may be the result of ineffective training or they may be symptomatic of underlying anxiety. Another example is seen in enuresis, which is often due to mismanagement on the

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part of the parents, or is merely one of the symptoms of an emotional disturbance.

The problems discussed in this chapter, as are noted, may be influenced by anxiety as well as training. The grouping of problems in this treatment should not be construed as indicating a different kind of causal background. As has been pointed out, problem behavior shows the failure to learn acceptable patterns of behavior. The interaction of training and anxiety upon the acquisition of behavior patterns cannot be overlooked or minimized.

FEEDING PROBLEMS

Complaints concerned with feeding difficulties are among the most frequent encountered in psychological clinics. Kanner (*5*) has reported that 20 percent of his patients referred for psychiatric advice had feeding problems. In Ackerson's group of 5000 clinic cases (*10*), 18 percent had feeding problems, while 28 percent of Tilson's (*188*) preschool children had such problems. Bartlett (*26*) found anorexia was the commonest complaint among 1471 outpatients on pediatric service; and no physical cause could be found for this problem in 34 percent of this group. The Committee on Nutrition of the White House Conference (*195*) estimates that 50 to 90 percent of all children beyond the age of infancy show feeding difficulties. These percentages are estimates and include many children with organic disorders who would not be referred to a psychiatric or psychological clinic, and also many children who present the problem at home, but whose parents never seek outside help.

It seems clear that the incidence of feeding difficulties in the normal home situation and in the clinic is high. What are the characteristics of this situation that make it prone to develop difficulties? The behavior of eating involves a great deal more than the mechanical ingestion of food. From the earliest period, feeding occurs in a setting which involves a relationship with another person. It can be accompanied by warmth and calmness or be associated with tenseness and maternal complaint. It reflects the mother's attitude concerning the importance and necessity of eating certain quantities of certain foods. It provides a source of satisfaction for the child. And it can be an opportunity for the child to use mealtime as a weapon with which to antagonize or frustrate his parents.

The common types of feeding problems are: (1) poor appetite (anorexia) which includes the refusal to eat and food whims, (2) excessive appetite, (3) perverted appetite (pica), (4) undesirable eating habits such as careless table manners, gulping food, dawdling over meals, etc., and (5) gagging and vomiting.

In dealing with any of these conditions, it is important that the possibility of organic cause first be determined. However, it should also be recognized that these conditions are often of psychological origin, and continued medication will not provide a solution.

Anorexia or poor appetite is probably the most commonly found feeding disorder. Parents complain that the child has no interest in food and does not seem to want to eat at all; that he refused to eat certain foods such as cereals, potatoes, meat, etc.; that he must be forced to eat or will not eat unless someone feeds him; that he will eat only if someone amuses him during the feeding, and so on. The stress upon food may be explained by several reasons. Thom (7) points out that the layman recognizes appetite as an index of health, and that parents tend to be excessively influenced by widespread norms of physical development. Poor appetite so frequently accompanies physical disorders that a sudden decrease in appetite is correctly viewed as a danger signal. On the other hand, the child's appetite increases to a normal level when the illness has passed so that a lack of appetite of long duration is more likely to be of psychological origin. Parental attempts to meet average norms for height and weight show a lack of understanding of the meaning of such norms. In some cases, the frantic attempts, including forced feeding, to attain a specified weight in a child may reflect erroneous beliefs (e.g., "a fat baby is a healthy baby") by the parents and/or fears that they will be considered as inadequate parents by others.

When organic reasons are eliminated, poor appetite can safely be attributed to poor psychological conditions in the child's home. In the first section of the following list, adapted from Aldrich (*13*), are found a number of "causes" of this condition. It is evident that they all represent situations in the child's life which demand behavior from him which will achieve a desired end. It can also be seen that the parent-child relationship is an important factor. As Kanner (*5*) stresses, "the feeding issue as such is obviously not an isolated phenomenon but a conspicuous indication of a child's response to the attitude of the feeder, whose 'methods' reflect general feeling tones, the direction of preoccupations, and the central focus of assumed obligations."

I. Psychological Causes
  A. In the child: negativism; means of gaining attention; means of gaining

any desires; temporary interest in other things; imitation of parental or sibling patterns; part of "spoiled child" picture; interference of a general restlessness; unhappiness or other moods; daydreaming; fussy habits in food likes and dislikes.

  B. In parents or other persons in charge: inconstancy in methods of training feeding habits; too many attendants with different methods; inadequate methods of handling in general; lack of purpose—haphazard or no method.
  C. In technique of the meal: forced feeding; nagging as a means of stimulating to eat; oversolicitude in relation to the meal; stunts or stories as rewards for eating; excitement preceding or during the meal; too much discipline, especially in relation to manners; unpleasant surroundings during meals; dawdling over meals permitted.

II. Physical Causes
  A. Disease processes: infectious—practically all, acute and chronic; organic pathology—especially of heart, lungs, and kidneys; teething; anemia; disturbance of functions—endocrine, coeliac, secretory, and motor disturbances of stomach; mental disease; malignant tumor.
  B. Hygienic: lack of fresh air; lack of exercise; lack of sunlight; lack of sleep.
  C. Dietary: overfeeding—in general, or with one food; too short intervals between meals; eating between meals; too much food rich in fat, or in sugar and starch; lack of vitamins; constipatory diet.

It will be noted that many of the items classed here as physical have an appreciable psychological element. Mohr (*138*) says that when all cases with disease, organic incapacity, or improper food are eliminated there still remains a large number in which the causation is evidently psychological. The Nutrition Committee of the White House Conference (*195*) points out that physical causes could not account for all the anorexia, and furthermore, that the condition is seldom found in children whose homes are free from undesirable psychological factors.

Excessive appetite is another problem about which parents complain. The increase in eating associated with some periods of growth and with exercise is an expected phenomenon and rarely causes concern. Ravenous appetite is sometimes found among the feeble-minded as a usual form of behavior. In intellectually normal children overeating may be the result of inadequate training or of imitation of their elders.

Prolonged overeating leads to obesity which is associated with emotional difficulties in home relationships and which tends toward the development of difficulties in social relationships outside the home. From his studies of obese children, Bruch (*44*) concluded that, in some cases, food becomes the major source of satisfaction for the child. Faced with continued emotional frustration, feeling unwanted and unloved by his parents, the child may find at least partial relief from the ensuing anxiety in the satisfaction of eating. Parental dissension and admitted overt rejection of the child have been noted in the families of children with excessive appetite (*45*). Kanner (*5*) states that most of the obese children seen in his clinic show a tendency to moodiness and depressions, are very tense and reserved, and harbor a marked resentment of their mothers and "at the same time remorse about having let the mother down." He feels that overeating serves two major functions: one as compensation for the absence of other satisfactions, and the other as a means of gaining parental approval. Further, he asserts that although endocrine and metabolic dysfunction must be considered, "regardless of their presence or absence, the potency of psychologic motives cannot be disregarded." Diet or medication alone are rarely entirely effective in correcting the problem.

Perverted appetite, or pica, refers to the persistent eating of objects, dirt, and debris, which have no food value. Such behavior is more often seen in infants or in the low grade feeble-minded. Kanner (*5*) describes thirty cases in which the children ate such things as dirt, sand, rags, string, coal, ashes, paper, paint, wood, stones, match heads, garbage, soap, plaster, bugs, flies, etc. Pica is distinguished from the experimental consumption of nonedible substances by normal children by the accompanied refusal of other food and the preference for this unusual "food." As this habit almost always appears in young children, the prognosis is good, provided the child is of normal intelligence and steps are taken to prevent continuance of the habit. Prevention may require close supervision and keeping foreign materials out of reach, or it may require temporary residence in a boarding home, hospital, or institution.

Parents sometimes complain of *poor eating habits* exhibited by their children. These complaints include dawdling over meals, gulping the food, chewing noisily, and so on. Frequently this is associated with poor appetite and refusal to eat certain foods. Spending more than the usual amount of time at a meal may result from distractions presented by the environment or by the child's own imagination, or from inability to talk and eat at the same time, or the desire for attention that can easily be satisfied in this manner.

These and other habits such as undesirable table manners, sloppiness, carelessness, etc. are obviously matters of training. Satisfactory behavior can be expected only when the parents set an adequate example. Parents sometimes complain about and punish their children for behavior which they themselves display. Some parents also set standards of behavior which are unreasonably high for young children to meet. It is necessary to ascertain whether the parental demands are reasonable for the specific child, to determine the parents' attitude, to find what purpose the behavior serves, and the effect upon—and that due to—the parent-child relation.

When *vomiting* arises as a problem, any possible physical cause must be eliminated by a careful medical examination, for it is a common symptom of disease in children. Vomiting not resulting from organic causes is most frequently an indication of emotional stress. Vomiting at feeding time may be induced by an emotional state resulting from the mother's attempts to make the child eat; after several such experiences the child may vomit at nearly every meal as a protest. Being a rather decisive means of obtaining solicitous attention and avoiding forced feeding, such behavior may become established as a habitual response. A similar use of vomiting as a protest or to attract attention occurs in many situations other than eating. When no physical cause is found, treatment should be directed to the psychological problem, the vomiting being considered a symptom which will disappear when the underlying problem is corrected.

Correction

The prevention of feeding problems is much simpler than their correction. The behavior which parents expect their children to show in regard to food and eating is learned. The condition for acquiring the desired behavior patterns should be established early in infancy, particularly in regard to the mother's attitudes toward feeding and her expectations for the child. Patience with the child's efforts in experiencing new foods; well-prepared and appetizing food; calm, cheerful mealtimes; no rigid insistence on conforming to superficial table conventionalities; plenty of time to eat, but not an excessive amount, are all of value in the establishment of good eating habits. While the child should be expected to eat the food offered, on occasion he should be allowed his choice. Demanding that he eat a standard amount of food at every meal is unreasonable, for the child's appetite varies from time to time as does an adult's. Aldrich (*13*) gave the mothers of his infant patients directions for training in feeding, including suggestions similar to those above but the chief injunction being never to force the child to eat. In a follow-up study, he found that 85 percent of 200 children had never shown any feeding problems.

The clinician, however, is faced with an existing problem. The treatment of psychogenic eating problems should be directed to the parent. The essential elements in therapy are the modification of parental attitudes and instituting a program of retraining. When the eating behavior is symptomatic of a personality disturbance, attention must be directed toward resolving the personality difficulty. A common finding in these cases is an extreme concern and solicitude by the parents. Such attitudes must be changed. Coaxing, nagging, anger, spoon feeding, excitement, worry, providing amusing stunts or tricks, and so on, must be stopped. The parent must consistently eliminate all such conditions which help to aggravate and perpetuate the problem if desirable eating habits are to be formed.

When the mother shows a willingness to alter her attitudes and realizes that the child will not be harmed by missing a meal or two, and when she can refrain from interfering with his eating by word or act, an active program may be started. This program should: (1) establish, and adhere to, regular mealtimes; (2) prevent eating between meals; (3) allot small portions of food to the child so that he can ask for more if he desires, rather than demand that he eat a large portion; (4) allow enough time for the meal but remove the food at the end of the allotted period; (5) avoid commenting about the refusal of food; (6) treat mealtime and eating as routine, matter-of-fact procedures.

SLEEP PROBLEMS

Sleep is a subject about which much has been written. The literature contains many articles and books of a speculative, investigative, and theoretical nature. From antiquity to the present, sleep has been related to blood circulation, food, fatigue, and other factors (*112*). The basis of sleep has been attributed to the biological and the physiological (*113*), and the psychological (*85*). Much remains to be understood about the physiology and psychology of sleep. We may think of sleep as a form of behavior characterized by a minimum of psychological interaction, and during which there is opportunity for physiological recuperation of fatigued organs. The physiological aspect is most evident in very young infants, when growth and metabolism are extremely active and the need for recuperation is great. With increasing age this need is reduced, although it never entirely disappears. The infant sleeps most of the time; but with the decreasing physiological need of sleep at older ages, the duration of sleep decreases, and a rhythm of waking and sleeping is established. Kleitman (*113*) maintains that, in the human, ". . . the sleep-wakefulness cycle . . . is not a habit, but an inborn pattern of alternation of rest and activity. What is subject to modification by experience and training, and thereby becomes a matter of habit formation, is the duration of the cycle . . ." It is with the establishment and maintenance of this rhythm or cycle that problems arise.

Theoretical normal amounts of sleep desirable for children of different ages have been estimated by various authorities. However, actual observations of healthy children have yielded estimates of sleep duration which do not agree with the theoretical estimates and, in general, are lower. Faegre and Anderson (*74*) note this difference, in connection with the study of sleep made by the Institute of Child Welfare of the University of Minnesota. It must be remembered that, in a set of norms, the figures are averages and that any given child may require more or less sleep in order to be in good health. A stress upon norms may result in overlooking the extent of variation which occurs among individuals. Children show wide individual differences in the quantity of sleep required. Despert (*59*), in her study of sleep in preschool children, is most impressed by the "great diversity of individual patterns" of sleep. A child may be healthy and normal although he seems to need considerably less, or considerably more, sleep than is stated for his age in the table of theoretical or observational norms.

As in other kinds of behavior, e.g., walking or speech, many parents regard the norms as absolutes. They attempt to make the child conform to the number of hours of sleep supposedly necessary according to a published table, even though the child actively resists. A child who appears to be getting along quite well with fewer hours than is recorded in the table for his age is made to lie in bed, is urged, exhorted, and threatened in an effort to make him sleep. Continued resistance by the child to these efforts results in a tug of war between parents and child with ensuing arguments and emotional scenes. These parents may consider the child's resistance a deliberate effort to rebel against parental authority, and thus feel threatened in their role of parent. They then become involved in an emotional struggle with the child in which the necessity for sleep becomes secondary. Despite the continued health of the child who "doesn't get enough sleep" the mother is not satisfied and fears dire consequences. Despert (*59*) points out that "some parents are known to have resorted to means . . . [to obtain sleep] . . . which arouse in the child a sense of guilt at having failed his parents or induce him to deceive his parents, both of which increase his anxiety at bed time." In many instances, the problem appears to be more that of the parent than of the child. The attitude of the parents and the parent-child relation are important factors affecting the situation in which this learning must take place.

Sleeping problems are concerned with the adequacy of the amount and quality of sleep that the child gets. They usually involve: (1) wakefulness, (2) restless sleep, (3) dreams, and (4) unusual or excessive drowsiness.

The problem of *wakefulness* usually occurs in connection with going to sleep, but it may occur after the child has once been asleep. In the infant, sleeping is fundamentally physiological. His sleeping and waking are associated with hunger and satiety. With increase in age sleeping becomes more of a psychological activity and the child must *learn* to go to sleep. According to Kleitman (*113*), this process requires a relaxation of skeletal musculature. Relaxation in turn can result only if attention is diverted from external stimulation, especially by vision and hearing. Another condition of relaxation is the absence of exciting and diverting thoughts. To achieve the necessary relaxation and thus to get to sleep requires time. Although children may fall asleep much quicker, 30 to 40 minutes from the time of going to bed to the time of going to sleep may be considered normal. Wakefulness beyond 45 minutes may be the result of a number of causes.

Physical conditions, such as pain, may cause wakefulness. Environmental factors, such as too much light, lack of ventilation, noise, the body too hot or too cold because of the room temperature or the amount of bedclothes, are all common reasons why a child does not fall asleep. Most of these conditions result in temporary wakefulness and are not ordinarily of psychological concern. In a large measure the psychological problem is characterized by consistent wakefulness night after night, even when other evidence shows that the child is obviously fatigued. The child may quickly learn to sleep under any of the above-mentioned adverse conditions. While it is desirable to have good sleeping conditions, he should not learn to sleep only when there is absolute quiet, absolute darkness, absolutely the right temperature, and so on. In other words, conditions in the household should be kept regular and normal and the child should learn to sleep under these conditions.

Wakefulness considered as a psychological problem is largely an unwillingness rather than an inability to sleep. As is true in many problems, the unwillingness is largely due to parental mismanagement. The sleeping situation involves a learned sequence of activity which includes the preparation for going to bed such as washing, brushing the teeth, undressing, putting on night clothes, then climbing into bed; lessening the stimulation due to emotional reactions and thinking; muscular relaxation, and finally, sleeping. One part of this sequence leads to another and the specific pattern of activity in this sequence may vary from one child to another. Mismanagement is illustrated by the parents who interrupt the child's interesting, often boisterous, activity and immediately put him to bed; and then expect him to fall asleep without delay. He hears the parents talk of their own difficulties in going to sleep. Some mothers say that the child will not go to sleep for hours, and that he asks for a drink, or wants to go to the toilet, or makes other requests—which they fulfill but they do not recognize that the attention is what he wants. Or parents may begin some activity which the child regards as fun within his hearing or sight immediately after putting him to bed. The child feels left out of the group and may seek means of forcing the parents to give him attention. Going to bed and going to sleep is often the occasion for a scene such as occurs sometimes at meals. There is coaxing and babying, then scolding and nagging, then anger—at least in the parents—and the child may feel rewarded by the commotion he can arouse.

Many children develop what Strauch (*184*) calls *stereotypias*. The child can go to sleep only if he has a certain toy, or is in a certain bed, or some other factor is constant. Despert (*59*) found that a majority of the group of normal children that she studied took a toy or a doll to bed. She also found a variety of ritualistic acts such as wanting the door left open at a certain width, brushing the hair in a certain manner, stroking toy animals, and so on. If the ritual becomes complicated and the child cannot fall asleep unless it is meticulously followed, it indicates the presence of a psychological problem as serious as that of the child who stays awake and cries for attention or that of the child who is afraid to fall asleep.

Fear is a frequent reason for wakefulness. Fear of the dark, of being alone, of the parents' leaving, or of imaginary things is found in the history of children who cannot go to sleep. A number of writers have noted that, in many cases, an important causal factor is the child's fear of being deserted by the parents and unprotected if he sleeps. In his discussion of "infantile insomnia," Anderson (*15*) considers separation anxiety to be the basis for wakefulness in most cases. Buhler and Greenberg (*46*) state that fear of the dark and the fear of going to sleep occur with sufficient frequency between the ages of one to three to be considered normal; but the persistence of such fears is not considered normal. Separation anxiety is likely to occur in children who have lost a parent in an accident or who have had a traumatic experience such as being left with a strange "sitter" after the parents have left abruptly without any explanation. The fear of being deserted has been found in children whose parents are constantly quarreling or show other evidence of marital discord. Representing the viewpoint of psychoanalytic theory, Fenichel (*76*) states that "fear of sleep . . . is a fear of dreaming, that is, of a failure of repression." According to this view, the repression of impulses or wishes which arouse anxiety is weakened during sleep. The prohibited or unfulfilled wishes or acts are expressed in a distorted (that is, symbolic) manner in dreams. Thus, the fear of acting out prohibited desires is generalized to the state of sleep and develops into a fear of sleep. Falling asleep becomes the stimulus for arousing anxiety associated with that which is prohibited or painful. Any presleep behavior which successfully detains or avoids sleep can be established as a learned means of anxiety (or pain) avoidance. If fears persist, they must be removed before an improvement in the sleeping problem can be expected.

In some children wakefulness is a problem not in going to sleep but in awakening after they have been asleep. Children may be awakened by sudden or loud noises, a light, increased bladder pressure, and the like; or the child may awake because of a dream. When the child cannot go back to sleep, then the problem is essentially similar in nature to the inability to fall asleep when he first goes to bed. The reasons for this kind of wakefulness are essentially the same as those discussed previously. If the rest of the family is in bed, there is an added factor—the increased quietness and the dark. The surroundings may seem strange and different and may arouse fear, particularly as the child grows older and imaginative ability increases. Elements of fear or loneliness and desire for attention thus may be added or emphasized.

Restless sleep can also be considered as a problem. During sleep children are not immobile, as is often thought. Studies by Marquis (*132*), Irwin (*104*), and particularly by Renshaw, Miller, and Marquis (*164*), show that at all ages there is an appreciable amount of motility during sleep. The conclusion of the last of these studies may be briefly summarized. Each child, under undisturbed living conditions, has a characteristic hourly motility curve, which in general is not materially affected by environmental factors such as temperature, humidity, and noises, by variation in daily activity, or by diet. These curves may be modified by illness and emotional states; they show significant seasonal variations. Younger children sleep more quietly than older ones.

Such findings show that a certain amount of activity is normal during children's sleep. The average length of quiet periods for all children studied was about eleven minutes. Therefore, by restless sleep as a behavior problem we mean sleep that is rather violently disturbed. Such disturbances may range from general motility only little greater than that exhibited normally by all children, to flailing the arms and legs, gritting and grinding the teeth, jerking the head, crying and screaming, and talking, to full awakening and going back to sleep several times during the night. Restlessness may be caused by organic physical conditions or motor activity associated with dreaming, or it may be the night behavior picture of the child who during the daytime is hyperactive, restless, and excitable.

Dreaming is as normal and characteristic of children as it is of adults, although increase in variety and detail probably accompanies increase in age and intellectual activity. In general, children's dreams directly reproduce the activity of the day, or are of a wish-fulfillment type in which unsatisfied desires of the day are realized. Freud (*85*) stated that, "Children's dreams leave us in no doubt that a wish unfulfilled during the day may instigate a dream." Kimmins (*108*), from an analysis of over 5000 children's dreams, is of the opinion that the wish-fulfillment element is the most important. Freud (*85*) divided dreams into two groups, stating, "We have found dreams which were plainly wish fulfillments; and others in which the wish fulfillment was unrecognizable and was often concealed by every available means." The actual content of the dream may be affected by physical conditions such as indigestion, bladder distention, or a disturbed blood circulation.

It is probable that restlessness and activity during sleep are often motor accompaniments of dreaming. Children cry, talk, scream, and sometimes smile and laugh during sleep, and there is evidence from older children that such behavior is part of a dream. Sometimes it is apparent from the direction of the sleepwalking or its persistence that wish fulfillment is involved.

Particularly severe and extreme types of activity during sleep that are almost certainly associated with dreaming are so-called nightmares and night terrors (*pavor nocturnus*). These two forms of behavior have in common a prominent fear element, although they are otherwise quite distinguishable. Kanner (*5*) has most adequately analyzed the differences which may be briefly summarized:

The *nightmare* is the sort of dream followed by waking, during which the child recognizes his surroundings and can give a fairly coherent account of what has happened. He relates a dream of a fearful experience. There is usually no disturbance preceding the waking. There are no hallucinations, no perspiration, no amnesia for the incident or the dream content. The episode is rarely more than a few minutes in length.

The *night terror* is a fearful dream which is not followed by waking, and if the child is partially awakened he does not recognize his surroundings and may hallucinate the dream elements into the room. There is extreme motor accompaniment: disturbed features, sitting up in bed or even getting out of bed, screams, and cries. There is usually perspiration. The child cannot be calmed during the attack, and following it he is amnesic for the episode and dream content. Duration may be from fifteen to thirty minutes.

Emerson (*70*) says that night terrors "occur most frequently in nervous imaginative children between the ages of three to eight years." They may recur night after night. On the other hand, nightmares usually end in waking and are not so likely to recur regularly. Emerson also says that nightmares "are more often associated with ill health and with digestive disturbances."

Nightmares are probably more common than night terrors, which decrease in frequency with age and are rare during or after adolescence. Kanner (*5*) feels these are "drastic" symptoms of personality disturbance. Sperling (*181*) calls them "neurotic" sleep disturbances. In summarizing her psychoanalytic view of "the psychodynamics of nightmares, pavor nocturnus, and sleep walking," she says the basic principle in these conditions is "the repression of intense sexual and aggressive impulses stemming from the Oedipal conflict." Another important cause, according to Sperling, is "sibling rivalry with the repressed hostility and resentment toward and death wishes directed toward the sibling" which she would put "second highest in the etiology of such disturbances."

Both the night terror and the nightmare probably indicate a pertinent personality disturbance characterized by anxiety. The correction of the symptomatic behavior involves correction and elimination of fears and reduction of anxiety. In acute attacks, wakening the child and then gently calming him is perhaps the most useful procedure.

Drowsiness, that is, the propensity to fall asleep rather than a difficulty in going to sleep is the sleep problem of some children. Parents complain that the child is always tired and sleeps too much, or that he falls asleep during the daytime. The cause of such drowsiness in otherwise physically healthy children is probably most often to be found in inadequate night sleep. The child goes to bed too late, or gets up too early, or both, so that he does not get sufficient sleep. Rearrangement of the sleeping schedule will usually produce good results. Kanner (*5*) suggests that subnormal children, or those in certain types of communities or homes with very limited interests and activities, may sleep merely as a way of passing time. Certain physical conditions, especially malnutrition, may make a child constantly tired and therefore ready to sleep. Narcolepsy and encephalitis also are physical disorders associated with abnormal sleeping.

Correction

The management of sleeping problems, if the possibility of physical cause has been eliminated, should not depend upon the use of sedatives. It is essentially a matter of learning to establish a cycle of sleeping and waking which conforms to social conditions and demands. The process of falling asleep and the maintenance of restful sleep depends upon relaxation and the lessening of tension, and a minimum of emotional or intellectual excitation.

Going to bed and to sleep should be presented to the child as a routine and desirable daily occurrence. Parents should not use the act of being put to bed as a form of threat or punishment for disobedience or misbehavior. Such direct association with fear or anxiety will not promote desirable sleeping habits. When problems of sleep arise, the correction should follow a similar plan. It becomes necessary to remove the sources of disturbing stimulation and provide effective means of inducing relaxation. Exciting prebedtime activity should be stopped and be replaced by quiet activity such as reading stories, provided they are not exciting or likely to elicit fear. Proper training of the child will prevent most disturbances. From early infancy the child should be put to bed at a regular time, the lights put out, and he should be left alone. Sufficient time should be allowed for the child to become accustomed to this sequence and its conditions. Kanner (*5*) has pointed out that many parents quickly run into the child's bedroom and pick it up at the slightest cry. Spock, in his Franklin Memorial lecture in Detroit, advised parents to *let* the child sleep! If the child awakens after being asleep, the parent should make sure that he is not wet or in pain or otherwise uncomfortable, and then leave him. When the child is continually picked up after awaking and crying, the awakening may become the signal for being picked up and comforted—a result which is likely to be more interesting, exciting, or rewarding to the child than merely going back to sleep. If the child learns that going to sleep is just one of the many normal things that everyone does in much the same fashion day after day, the chances of problems arising are minimized. Going to bed, and sleeping when in bed, should be made merely a routine daily task: it should never be an occasion for emotional excitement. A routine sequence can be followed in which toys are put away, the child goes to the bathroom, is washed and dressed for bed, and a short, unexciting story is read. A favorite toy or doll which the child takes to bed with him should not be removed abruptly.

The definite presence of ritualistic bedtime behavior indicates the use of defenses against anxiety and fear. The persistence of such behavior or of strong fears necessitates a program of determining the sources of the anxiety or fears and eliminating them. Fear of the dark may frequently be removed by permitting a light in the bedroom at first; then, over a period of time, the illumination can be reduced until only a small night-light is sufficient, and finally, even that may be put out. Fear of closing the bedroom door may be handled by keeping the door open, then gradually closing the door a little more each night. Fear of being left alone or being abandoned may be managed by having the parent sit quietly in the room until the child falls asleep and for about a half hour afterward—in case the child awakens within that time, as is frequently the case with such problems. The parent can then gradually decrease the amount of time that is spent in the room until the fear subsides entirely.

When the child's anxiety is a reflection of a general emotional disturbance in the home resulting from marital discord or other conditions, the child's problem will improve as the home conditions improve. If wakefulness is caused by "separation anxiety" stemming from the child's feeling of implicit or overt rejection by the parents, he must be convinced that he is a desired and loved member of the family. The problem will improve as the conditions for such anxiety are lessened.

Restlessness usually responds to the regulation of evening diet and activity. Exciting dreams, nightmares, and night terrors are probably more frequent if the child goes to bed too much excited from his evening's play, or if he is not in good physical condition. Calm words following the acute attack, and the elimination of fear at all times help in combating these disturbances. Emerson (*70*) says that sedatives should be used only when the attacks are severely disturbing the child's sleep.

Sperling (*181*) has noted that sedatives are likely to be ineffective in many cases in which the sleep disturbance is a "neurotic problem." Disturbances of sleep commonly have been noted as part symptoms of a generalized emotional disorder. In such cases, of course, it is the larger problem which must be attacked and treated, rather than the problem of sleep.

ENURESIS

In the infant, increased pressure from the accumulation of fluid in the urinary bladder is the stimulus for relaxation of the sphincter muscles and the accumulated fluid is voided. Control of this sphincter reflex is regarded as one of the basic accomplishments in child training and should ordinarily be attained by three years of age. The condition in which there is a lack of voluntary control of micturition after three years of age is termed *enuresis*. Although some children lack this control during the day (diurnal enuresis), nocturnal enuresis (bed wetting) is evidenced more frequently. Reports by Kanner (*5*) and by Holt and Howland (*100*) agree on the relative infrequency of diurnal enuresis.

The incidences of enuresis, as reported in many studies (*5, 11, 70, 98, 188*) varies greatly with little difference between presumably normal children, children with behavior problems, and mentally retarded children. It appears that about 15 to 20 percent of children exhibit enuresis. Sex differences in frequency are not conclusive. Some authors report an equal frequency of occurrence in both sexes, others report a greater percentage of enuresis in boys than in girls, and reports have also indicated a greater frequency among girls.

The differences in proportions noted in these studies suggest that inadequate control of micturition is the result of many possible factors and cannot be attributed to any single factor. Conditions resulting in enuresis may be classified as: (1) physical, (2) training, and (3) emotional. Among the physical causes which have been noted are enlarged tonsils and adenoids, adherent prepuce, narrow meatus, vaginitis, spina bifida, endocrine disorders, malnutrition, anemia, rectal irritations, and highly acid urine. There seems to be no doubt that such conditions as these, and perhaps other minor ones, may be the direct cause in some cases, and contributing or aggravating causes in many cases. However, Kanner's discussion (*5*) of the organic causes indicates that while they may be important in some cases, no one of these conditions invariably results in enuresis. Holt and Howland (*100*) say that in 68 percent of the cases no physical disability can be found; and Wooley (*197*) suggests that the cause is nonorganic in as many as 90 percent. In any individual case of urinary incontinence, the physical conditions should be ruled out as causal factors before the disorder is attributed to psychological causes. If a possible organic cause of enuresis is present, its correction or improvement must be left to the physician.

Hereditary factors have been suggested as significant in causing enuresis. Petrovski (*155*) has claimed that enuresis is a "recessive monohybrid hereditary disease," the anatomical basis of which is an anomalous bladder innervation. Frary (*79*), in a study of the genealogical histories of enuretics, concluded that enuresis is "a hereditary trait determined by a single recessive gene substitution." Sex-determined factors in enuresis have not been found. Diller (*64*) compared 76 boys and 76 girls who showed enuresis without organic basis but did not find any significant differences in family or personal backgrounds between the sexes.

Urinary incontinence may persist even when presumably definite physical causes are removed. The behavior in this condition involves more than the voiding of urine and it is not devoid of psychological significance. Indeed, in most instances, it is likely to evoke immediate, strong reactions in the persons directly concerned. It may affect subsequent relations between the parents and the child. The effect of such parent-child relations directly due to the occurrence of enuresis may be desirable or undesirable to the child. If desirable consequences accrue, such as increased attention, the inability to achieve bladder control may persist despite the removal of the apparent physiological determinants.

Many investigators have attributed enuresis to a lack of training in the child. Bleyer (*40*) makes a distinction between enuresis and pseudo enuresis. He proposes that true enuresis "is a disturbance of micturition in which the physiologic control of the brain is blocked by stronger stimuli which have to do with the nervous mechanism of the bladder." The condition that most clinicians would call enuresis he would name "pseudo enuresis" because it is a "mere perversion of habits in an irresponsible, usually neurotic, and often mentally defective child."

Inadequate training of bladder control is closely interwoven with emotional and social aspects of behavior. In some cases, it is quite evident that the problem is simply the result of a lack of adequate habits. This inadequacy may be due to a number of conditions in the home. The following characteristics have been associated with inadequate training: (1) *Attitudes of the parents.* Some parents, usually of low intelligence level, show no concern with training the child in toilet habits. They assume that bed wetting is a natural occurrence and believe that the child will outgrow it without any attempts at training. Some parents think that urinary control is entirely a function of maturation and does not require any learning of habits. Parents may rationalize their lack of interest, carelessness, or lack of responsibility by such beliefs. Frequently parents believe that training is futile because they are convinced enuresis is a hereditary trait. An example of this attitude is seen in Kanner's statement (*5*) of one mother who said: "I did not do anything about it because it is inherited from her father; he was twenty-two when he stopped" (during wartime service in the Army)! In some homes, poor accessibility of training facilities leads to a neglect of training because of the trouble or discomfort to the mother or the child. Maternal oversolicitude also has been noted in cases of enuretic children. Excessive indulgence by the mother is excused on the grounds that the child is too small, delicate, ill, nervous, or the like and training is neglected. (2) *Low ability in the child.* The child's inadequate ability may make the training program longer and more laborious so that parents will not exert sufficient effort. That training in toilet habits is possible in the feebleminded is demonstrated by every mentally defective child who has satisfactory habits. An elaborate study of the relation of enuresis to intelligence is that of Ackerson and Highlander (*11*), who found no correlation; the distribution of I.Q.'s for a group of enuretics and a group of nonenuretics both followed the usual normal curve.

Aberrant personality or emotional conditions as reasons for enuresis is a common finding in most clinics. A child may respond to parental lack of interest or overt rejection by enuresis as a part of a generalized emotional reaction. Enuresis frequently appears in children from unstable homes and families. Pfister (*156*) indicated a relative frequency of neurotic and psychotic conditions in the ancestry of enuretics. Kanner (*5*) reports the frequency of conditions indicative of instability in the families of enuretics, including alcoholism in father or mother, emotional instability and social maladjustment of parents, criminal records in parents or siblings, sex delinquency of parents, and broken homes. The presence of conditions such as these does not mean that any one is a direct cause of enuresis in a child. They represent home circumstances that may be reflected in the child's total personality development and its distortions, of which the enuresis is only one symptom.

A number of investigators have indicated that enuresis is very frequently symptomatic of a general emotional disturbance. A study by Michaels and Goodman (*136*) found enuresis, thumb sucking, nail biting, and temper tantrums to occur more frequently in combination than in isolation. On the basis of their study they say, "We believe that enuresis is a reflection of an ill-balanced personality, rather than an independent, unrelated, and insignificant manifestation." Kanner (*5*) agrees that enuresis is rarely "monosymptomatic" and lists eating problems, temper tantrums, nail biting, and fear reactions as the behavior problems most frequently associated with it. Despert (*58*) noted the persistence of nose picking, biting, teeth grinding, and genital manipulation in association with enuresis.

The association of enuresis with other behavior symptomatic of emotional disturbance has led investigators to consider the personality characteristics of enuretics. The trait of aggressiveness has frequently been noted in relation to enuresis. Healy and Bronner (*98*) say enuresis may be "revenge phenomena." Evans (*72*) describes enuresis as a "rebellion against situations and attitudes." McGuinness (*125*) says that ". . . sometimes enuresis is an aggressive act in a very submissive child." Despert (*58*) has stated that enuresis is a means of expressing hostility. Pearson (*152*) feels that enuretics show a "chronic aggressive character pattern" in which the enuresis is an expression of hostility toward the parents. From the psychoanalytic viewpoint, Klein (*111*) feels that in a number of instances enuresis is caused by children's aggressive fantasies of destroying others by means of urine. She calls such fantasy a sadistic reaction to a maternal deprivation of "fluid." Many other personality traits have been noted in enuretic children. Kanner

(*5*) and others (*15*, *71*, *76*, *143*) have noted immaturity, ambitiousness, stubborness, oversensitivity, passivity, fearfulness, and timidity. No particular constellation of traits has been found to typify all enuretic children. Lord (*123*) compared personality traits in enuretic and non-enuretic boys but found no significant difference in most of the characteristics. A greater fear of women was found in the enuretic groups and he concludes that the enuretics were "more feminine in sexual identification." Kanner (*5*) states that most of his enuretic patients were characterized by a general immaturity. From the table in which he lists the various combinations of characteristics, it is seen that "whining, complaining, moody, irritable children and restless, overactive, fidgity, excitable" children make up slightly more than half of his enuretics.

To attain an understanding of the child and his situation which will enable effective corrective measures to be taken, the clinician requires more than a mere listing of physiological, social, or learning conditions and personality characteristics associated with enuresis. He must determine the factors which appear to be responsible for, contribute to, or aggravate the enuresis. He must determine what has prevented or is blocking the learning of adequate bladder control. Understanding this behavior may be sterile without understanding the use of this behavior and its meaning to the child. A more fruitful possibility lies in the consideration of enuresis as behavior resulting from the interaction of varied factors and affecting the course of subsequent action.

Enuresis caused primarily by lack of training may become an important factor in the development of certain personality characteristics and even in the development of personality disorders. The inability to maintain control is likely to be embarrassing to the child. Punitive measures taken by parents are likely to enhance the child's feeling of failure and encourage attitudes of inferiority or inadequacy. Parental beliefs that enuresis is the result of a hereditary, physiological deficiency which is beyond their control may lead to the child's developing feelings of inferiority, of being different from other children, of helplessness and hopelessness. These feelings are likely to affect areas of behavior other than urinary control and develop into specific personality traits.

Many so-called "corrective" procedures undertaken and advised by parents, physicians, and teachers have been described by Kanner (*5*) as sadistic. The variety of such treatment as Kanner describes is found in the records of most clinics. One mother, for example, rubbed her son's face in the bed sheets soaked with urine. When asked why she had chosen this form of correction she replied: "That's the way we always trained our cats and dogs." (!) Extreme treatment of this sort may lead to increased aggression in some children and to a marked withdrawal in others. The child may use the enuresis as a means of expressing hostility toward parents or parent surrogates. He may use this as an effective way of getting attention. The continued appearance of this behavior is in part dependent upon adult reactions to it when control is not evidenced at the expected time.

Correction

Prevention of enuresis should be the first aim. Since enuresis may be regarded as a failure to acquire a habit, prevention can be accomplished by an active training program. This habit involves sphincter control and thus necessitates an adequate level of physiological maturation before training can be effective. Although many handbooks for parents advise beginning training for toilet habits as early as two months of age, no evidence exists that conclusively shows training is effective at this age. On the other hand, there is evidence indicating that training is of very dubious value if begun before appropriate maturation has occurred. In addition, there is a considerable body of evidence relating attempted toilet habit training at such early ages to subsequent personality and behavior problems. Specific training for urinary control can start by nine months or one year of age. The training can be facilitated by: (1) determining the most probable time for urination by keeping a record of the urinations for several days then regularly placing the infant upon a suitable receptacle, (2) keeping the infant as dry as possible by frequently changing the diapers, thus increasing a reaction to wetness as uncomfortable, and (3) teaching the infant consistently to make some sign or to say a short word when he needs to urinate. The use of praise and encouragement for voiding under the desired conditions and the avoidance of scolding, shaming, or punishment for failure to do so will aid in the development of control.

Training for dryness during the night requires more time than training for daytime dryness. It is likely to be more quickly rewarded if such training is delayed until the infant is 15 to 18 months of age. The child can be placed upon the toilet seat immediately before going to bed, during the night, and after awaking in the morning. Exact times of arousing the child during the night will depend upon the child. A time schedule should be worked out based on observations of the child during several nights.

Some children show a greater regularity of voiding than others. It is more difficult with children who tend to be irregular in their voiding to establish the desired habits. By somewhat arbitrarily choosing the scheduled times for training and consistently maintaining them, the parent can help the child to become more regular and then to attain control. Much patience by the parents is needed during the course of establishing urinary control but it is rewarded by the pride of the child in attaining this goal and living up to the expectations of his parents.

Although prevention of enuresis is the desired aim, the clinician is usually faced with an already existing problem and he is asked to advise procedures for correction. The first step should be a complete and adequate physical examination. Anatomical or physiological conditions which might be aggravating the condition must be corrected by surgical or medical attention. Kanner (*5*), in summarizing treatment methods as reported in medical literature, lists a variety of mechanical and surgical procedures, a number of drugs, and different diets as preferred means of therapy.

As there is no single, exclusive etiological factor for enuresis, it is evident that a detailed history of the case must be obtained. The history should be organized to reveal the presence of any or all of the specified etiological factors. It is helpful to consider the role of the enuretic behavior in each particular case: the expectations and attitudes of the parents, their manner of handling the child, the kind and extent of corrective measures taken by the parents, the meaning of this behavior to the child and the manner in which it is being used, the child's reaction to the enuresis, and so forth. Determination of the stresses and strains in the child's home in relation to the enuresis will aid the selection of appropriate measures.

For most cases without physical abnormalities, or after they have been corrected, a definite training program should be instituted. To minimize physiological pressure, liquids should be restricted at the evening meal and no liquids taken after this meal. In some cases it may be well to allow the child a tablespoonful or two of water at bedtime. About two hours after going to bed, the child should be awakened and he should void. He should be awakened again at two or three in the morning. At first, several awakenings and voidings may be necessary. He should be thoroughly awakened each time. The intervals between awakenings should be gradually lengthened.

This procedure may be very trying to parents who may already be irritable and are likely to become more so with continued interruptions of their sleep. If the child is old enough, an alarm clock may serve the purpose of awakening the child, who should then void. Mowrer (*143*) devised an apparatus which provides an automatic means of waking the child as soon as he voids even a few drops of urine. A specially prepared pad upon which the child sleeps is connected in series with a battery and bell. Even a few drops of moisture completes the circuit; the ringing bell usually inhibits further urination and wakes the child. The training end point is reached when bladder distention replaces the bell-ringing as the stimulus for awakening. This apparatus has been used with success in children's institutions. It is not recommended in cases of organic illness or serious personality difficulties, or for children under three years of age.

All psychological pressures which have a negative effect and tend to increase anxiety in the child will interfere with the process of retraining. Threats, punishment, and excessive demands for achievement in other areas should therefore be lessened. Each instance of successful urinary control should be praised. A form of reward which can be used with children is the awarding of stars as recognition of "work well done" and pasting them on a chart as a visible record of progress. It is important that the child's coöperation be obtained and that he be helped to have confidence in his ability to overcome the "bad" habit. In some cases, active attempts to secure the coöperation of the child are not the best procedure. The child may resist such attempts, interpreting them as additional unwanted adult pressure. Indirect methods may be preferable in such cases.

In cases in which the enuresis is not a matter simply of inadequate training but reflects the presence of an emotional disturbance, the problem will have to be attacked by efforts to alter home conditions, parental attitudes and treatment of the child, and other social conditions such as those involving the school. When the emotional disturbance, of which the enuresis is symptomatic, is ameliorated, the enuresis will cease. As is frequently the case with many behavior problems, the entire home environment of the child may require changes and the process of reëducation involves learning not only on the part of the child but reëducation on the part of the parents.

SEX PROBLEMS

Of all the behavior problems exhibited by children, those involving sex are perhaps the most disturbing to parents, teachers, and other adults. Our social culture has established such strict taboos on all sex matters that these problems arouse objections out of all proportion to their actual seriousness. Because of this attitude of parents and others, the clinician must be especially careful, when dealing with these cases, not to assume or display any moral attitude. The child is not to be judged; his acts are not to be condoned or condemned. The clinician's primary aim is to understand and help the child, not to render moral judgments. Careful consideration of the circumstances concerned with the sexual behavior which is objected to and of the parental attitudes toward it, is necessary to determine the reasons for this behavior. Tolerance and caution in handling these cases is stressed because so frequently it has been found that the parents' disturbance is a reflection of their own anxieties and problems in regard to sexuality; and correction of the problem necessitates understanding and coöperation on the part of the parents.

Masturbation

The occurrence of masturbation, defined as the manipulation or self-stimulation of the genital organs for the purpose of sexual satisfaction, has been noted in both sexes at all ages but few statistical studies on the frequency of masturbation in children have been published. Ackerson's study (*10*) found masturbation occurred more frequently in his cases than any other sexual activity. He also found that masturbation was more frequent in the boys than in the girls. Ellis (*69*) has summarized a number of opinions, some of which were based on investigations as to the extent of the practice. The percentages vary from 23 reported for men in the professional classes in northern Italy to 99 estimated by Oskar Berger. Table 20 summarizes several more recent statistical studies, based, with one exception, on questionnaire returns from adults. Taken at their evident value, these data indicate that about two-thirds of the men and slightly over one-half of the women admitted masturbating. In Kinsey's studies (*109*, *110*) of sexual behavior in large samples, 62 percent of the females and 93 percent of the males admitted masturbating at some time in their lives.

As to the frequency of masturbation among children, Ackerson's study (*10*) reported masturbation in about 25 percent of the boys and 10 percent of the girls. The author himself suggests that those figures are possibly not complete because the notation usually depended upon the examining psychiatrist, and it may have been possible that information was not consistently obtained for every case. Roughly similar estimates are seen in Kinsey's data which report that 12 percent of his female sample and 21 percent of his male sample recalled masturbation by 12 years of age.

TABLE 20. Reported Incidences of Masturbation

		Number		
Author	Group	Reporting	Admitting	Percent
Men				
Exner (*73*)	College men	518	319	61.6
Peck and Wells (*153*)	College men	188	139	73.9
Achilles (*8*)	High-school boys	349	197	56.4
"	College men	39	29	74.4
"	Adult men	70	60	85.7
Peck and Wells (*153*)	College men	238	195	81.9
Hamilton (*97*)	Married men	100	88	88.0
Total men		1502	1027	68.3
Women				
Achilles (*8*)	College women	31	14	45.2
Davis (*56*)	Unmarried college women	930	603	64.8
"	Married women[a]	951	381	40.1
Hamilton (*97*)	Married women	100	40	40.0
Total women		2012	1038	51.1

[a] Reporting masturbation before marriage. In no case was the practice begun after marriage, although in at least 62 cases it was continued afterward.

In considering the relation of age to masturbation, data by Davis (*56*) and by Kinsey (*110*) lead to the conclusion that girls begin the practice at an earlier age than boys, and that the proportion of boys starting this activity rises very sharply in early adolescence in striking contrast to that of the girls. Kinsey's data show very little increase in masturbation by males after age twenty (*109*), whereas in the female (*110*), there is an increase of about 20 percent between the ages of twenty and thirty-five.

Although Freud's ideas concerning infantile sexuality at first produced strong negative reactions, and masturbation during infancy was often denied, more recently actual observations of infants have confirmed the presence of masturbatory activity—apparently to the point of orgasm. Seventeen of 603 unmarried college women in Davis's study (*56*) reported the onset in the third or fourth year. Levine (*117*) has noted instances in children less than three years of age. Bakwin (*1*) describes cases which have been brought to his attention as problems in infants as young as two months. Kinsey (*110*) reports on 23 girls of three years or younger who reached orgasm in self-masturbation. Although he notes that his data are based in part on observation, he does not state what proportion. Other writers have also described specific instances of masturbation of varying duration during early infancy.

Although two types of masturbation—that is, manual self-manipulation and instrumental manipulation by means of foreign objects—are mentioned most frequently, two other types have been distinguished by Rohleder (*172*), accepted by Kanner (*5*), and investigated by Kinsey (*110*). These do not coincide with the definition as given earlier but must be considered as aspects of the problem. They are *mutual masturbation* in which two or more children stimulate each other's genitals, and *mental masturbation* in which excitement and even the orgasm are produced by means of sexual fantasy or pornographic pictures or literature. The last-mentioned form has received considerable attention in Kinsey's studies (*110*) in which he concluded that men are, in general, more easily and more frequently sexually responsive to erotic stimuli of an imagined or pictorial character than women.

From the foregoing, it can be seen that masturbation is an activity which is very common to both sexes, can begin in early infancy or at later ages, and is not restricted to any definite period of life. Its mere occurrence does not constitute a problem. The problem related to masturbation, therefore, is due to the real or imagined effects of this behavior; especially as the activity affects the attitude of the child toward himself or as it affects the consequent attitudes and treatment of the child by the parents or other adults.

Fenichel (*76*), in stating the psychoanalytic view, says that masturbation is normal in childhood. He views the function of childhood masturbation as being similar to the function of play. That is, from this viewpoint, as play at first is the means of mastering overwhelming excitation, so "similarly infantile masturbation may serve as a means of learning gradually the active mastery of the experience of sexual excitation."

The frequency of reported and observed masturbation in the early years and in infancy suggests that this activity may be related to the persistence of infantile maniuplation of the body. All infants appear to indulge in body exploration. During the course of such exploration, stimulation of the genitals evokes pleasurable sensations and is likely to be repeated. Lying in bed awake is an ideal setting for the initiation or continuance of the habit. Local irritation because of skin disease, uncleanliness, or too tight clothing in the genital and perineal regions may cause the child to scratch and rub. Such activity results in pleasant genital reactions and when the irritation is removed the masturbation becomes a desired end in itself. Spontaneous erection has been noted in infant boys. With the attention directed to the genitals in such circumstances initially exploratory handling may develop into masturbation. Conn and Kanner (*54*) reported masturbation in 19 of 47 cases of spontaneous erections.

Any experience which stimulates the sex organs may be the initial stimulus for masturbatory activity. Unintentional or intentional handling by parents or nurses, sliding on ropes or bannisters, playing in the bath, riding tricycles or bicycles, and so on, have all been given as the occasion for beginning the practice.

In Davis' study (*56*), accidental discovery was given as the reason for starting masturbation by 53.4 percent of the unmarried women and 52 percent of the married women. In Kinsey's study (*110*), 57 percent of the females gave self-discovery as the reason. Of Davis' subjects, 27.4 percent of the unmarried women and 41.5 percent of the married women said they had learned the habit from another girl or older woman. Of Kinsey's female subjects, 43 percent learned to masturbate as a result of verbal and printed sources, 12 percent as a result of petting, 11 percent by observation of others, and 3 percent as a result of homosexual contact. In his study of the male (*109*), Kinsey reports that 75 percent of the subjects gave verbal or printed sources as means of starting to masturbate, 40 percent gave observation as the reason, and only 28 percent said that self-discovery was the basis. These data by Kinsey are based on cumulative frequencies. Clinical experience clearly indicates that older boys who masturbate are entirely willing to introduce younger children to this activity.

Boenheim (*41*) emphasizes domestic unhappiness and parental mismanagement as causes of masturbation. Blanton and Blanton (*38*) say that masturbation may be a sign of tension resulting from home conditions. In this way it may be symptomatic of personality disturbances in the same way that nail biting, tantrums, and night terrors are. Excessive masturbation, rather than the occasional practice, is more likely to be symptomatic of this sort of disturbance. Preoccupation with erotic daydreaming may also be considered indicative of personality disturbances.

The alarm that so many parents show when they are confronted with masturbation by their children is, in part, based upon misconceptions about the harmful consequences of this behavior. Judging from the reactions in clinical settings, a large proportion of the general public has failed to keep pace with new findings and has not been adequately informed about the changes in medical opinion on this subject. Almost every kind of mental or nervous disorder has at one time been predicted, by reputable men, as a result of the practice. Parents were warned against extreme physical ailments, feeble-mindedness, and psychosis as consequences. From the time of Tissot's monograph (*189*), the dire results of masturbation were one of the chief concerns of most writers on the subject until the last quarter of the nineteenth century when, according to Meagher (*134*), a more scientific approach to the problem was made.

Modern opinion is that the frequency with which masturbation occurs bears no relation to the incidence of mental disorders. There is no evidence that the practice, *per se*, even when carried into adult life, is a cause of thinking or personality disorders, although it may be important indirectly because of the attitudes and feelings associated with it.

It is the attitude of parents, teachers, and other adults that the activity is bad, unclean, shameful, and harmful that affects the child and leads him to use any means to avoid discovery. The child usually accepts such parental beliefs but finds the practice pleasurable and cannot stop it. This leads him to become anxious about masturbation, to feel something is wrong with him because he continues the "harmful" act, and can intensify the development of emotional difficulties. In his volume on sexual behavior in the male, Kinsey states that: "In the present study we have examined the histories of 5300 males, of which about 5100 record experience in masturbation. It would be difficult to show that the masturbatory activities have done measurable damage to any of these individuals . . . [with rare exceptions]. . . . On the other hand, the record does include thousands of cases of boys living in continual conflict, fearful of social disgrace, oftentimes disturbed over the effect of such behavior on their ultimate sexual capacities, occasionally attempting suicide—as a result of the teachings concerning masturbation" (*109*). In regard to the female, Kinsey says: "Among the females in the sample who had ever masturbated, approximately half had experienced some psychologic disturbance over their experience. . . . Some 30 percent had been disturbed for more than ten years. . . . There is no other type of sexual activity which has worried so many women" (*110*).

The impression should not be gained from the foregoing that because current opinion regards masturbation as normal and not the cause of harmful after effects, this behavior should be disregarded. Masturbatory activities may be so frequent and uncontrolled that they interfere with the attention and concentration necessary for school work. They may be serious because of the child's attempts to influence other children. Also, there may be pathological conditions or infections of the genital organs, particularly in girls, as a result of the methods used. In addition, the act itself is not isolated from the feelings and attitudes associated with it. The activity often evokes strong reactions from the parents, particularly punishment. In short, there is an interplay of behavior between parents and child in which the act influences subsequent parental treatment of the child and is itself directly influenced. Many writers have noted that although the act of masturbation does not necessarily have undesirable results, the habit may be a symptom of a personality disorder. There are therefore many reasons for paying attention to masturbation as behavior exhibited by the child, and giving serious consideration to the masturbator, the conditions eventuating in this activity, the function it has for the child, and the effects upon the parents.

Correction

The first, and perhaps most necessary, step in the treatment of a child who masturbates is to overcome and change erroneous notions concerning sinfulness or harmfulness of the act that may be held by the parents or by the child. Until this is done, attempts to correct the behavior are likely to fail. Parents must be assured of the great improbability of harmful consequences, and be shown that their concern is potentially more harmful. The undesirability of attitudes, stemming from erroneous conceptions, in dealing with masturbatory activity in small children must be stressed. Similarly, the child's attitude toward his masturbation should be determined, and when it is unhealthy it should be changed. An unbiased and unemotional consideration of the whole problem will greatly aid him to see his problem in its true light. A relationship must be established with the child which will enable him to talk freely about the activity.

Careful medical examination of the genitalia is always indicated. Pruritis, eczema, or other skin irritations must be remedied. Phimosis, or tight prepuce, should probably be surgically remedied. Cleanliness of the genitalia is necessary. Children should be taught to empty the bladder before increasing tension causes sexual irritation. Young children should not lie in bed for long periods awake unless they have books or interesting toys to occupy their time and attention. Avoid petting and fondling of such a nature, or to such an extent, that it may afford sexual stimulation to the child.

The clinician should always remember that in many cases masturbation is symptomatic of inferiority, loneliness, unhappiness, anxiety, and other personality difficulties. In such cases there are other symptoms of the underlying condition. Attention should be directed first to the general condition and only later to the specific act. Restraint, mechanical or otherwise, threats, severe punishment, emotional appeals, are of little avail in attempts to abolish the habit. They may, indeed, serve to intensify the conditions which led to its establishment, and may aggravate the activity.

Heterosexual Problems

Curiosity concerning everything that is seen and heard is a characteristic common to children. The child normally asks questions about anything and everything in the course of his development. His body is an ever-present stimulus to his curiosity. Sex is not immune to this curiosity. However, questions about sex are not answered with frank information. In keeping with our usual cultural attitude concerning this topic, the child's questions are evaded. The child gleans only part truths and gross misinformation from playmates, chance observation, and frequently direct experiment with children of the same or opposite sex. In his attempts to get information on this tabooed subject, the child may engage in activities which are frowned upon by his elders. Such activities are often looked upon as problems and are called to the attention of physicians, psychiatrists, and psychologists. These problems range from obscene or vulgar talk or daydreams to attempted or completed intercourse.

Sex topics may be taboo at home or with other adults, but they frequently are the center of children's conversation—often, it is true, without any real idea of the subject. After ten or twelve years of age, this subject often may be a major one—stories, real or imagined experiences, tall but thrilling tales of things seen or heard, questions and parental answers to them are usually the only methods available for the child to obtain knowledge of this taboo area. With a cultured home background the talk may be restrained but among other children vulgarity and obscenity are common. Such language, the reading of pornographic literature, and the writing of vulgar notes are problems that occasionally appear.

More direct methods of investigating the field of sex are often employed. Peeping, which is considered a deviation in the adult, may be perfectly normal for the older child who desires information. Peeping into unshaded windows or guests' rooms sometimes presents problems. In crowded homes, or because of unwholesome parental attitudes (e.g., oversolicitude), children are sometimes forced to sleep in the same room, or even in the same bed, with the parents. Under such circumstances they may discover the parents engaged in the sex act and without making known their discovery may subsequently lie awake in order to further their observations.

The child's reaction to observed instances of intercourse will depend largely upon his notions about sexuality prior to his observation and upon the individuals involved. If he has been told little or nothing about sex, and together with another child, he sees adolescents in the sexual act—as sometimes occurs—he is likely to be impressed as much with the risk of getting caught peeping as he is with the details of intercourse. If, however, the child unobtrusively observes his parents in the act and interprets what he sees as fighting and physically injurious, he may regard intercourse as hostile, harmful, and something to be feared. Although the witnessing of the "primal scene" is regarded as frequently being traumatic by writers with psychoanalytic views, clinical experience indicates that such observation may stimulate active experimentation by the child and is not necessarily of a traumatic nature.

As early as seven or eight years of age, children sometimes seek information about the opposite sex by direct experimentation and exploration, and may attempt to indulge in coitus. Indeed, most parents seem to be unaware of the extent of such active experimentation by their children. Exhibitionism occurs, often as an inducement or suggestion to other children to exhibit themselves.

Petting—the term for a form of behavior that has been variously named by each succeeding generation—includes a large variety of acts of obvious sexual import which usually stop short of actual intercourse. This is a problem of adolescence, the seriousness of which depends largely upon one's point of view. The greatest harm comes from the excessive emotional stimulation which frequently is uncontrolled. Sex education which gives the child some sense of values is of much greater usefulness than endless exhortation and attempts at strict deprivation of social relations with the opposite sex.

In adolescents, sexual intercourse is an important delinquent problem. Intercourse may be entered into voluntarily only once or occasionally, or it may be so extensive that it leads to prostitution. Assault of young girls by older boys and men, and incestuous relations, usually are not considered behavior problems in the girl. However, examination frequently indicates that the girl acted as the seducer, which implies the presence of a problem.

Homosexual Problems

Homosexuality refers to sexual stimulation and satisfaction by members of the same sex; that is, there is interaction between two males or two females. Etiological explanations of homosexual behavior differ greatly. It has been attributed to genetic factors, to constitutional factors, to glandular dysfunction, and to learning through conditioning or imitation (*109*). Attitudes of acceptance or rejection of such activity vary with different cultures and subcultural groups. Within our culture, although acceptance varies with different groups, homosexuality is commonly considered to be abnormal. It may be considered abnormal when it is the preferred type of sexual adjustment; on the other hand, it may be psychologically normal when it is the only sort of adjustment possible.

Estimates of the incidence of homosexuality have varied widely. Earlier studies estimated that from 2 to 5 percent of males have had homosexual experiences. More recently, Hamilton found that 17 percent of the men in his study had had such experience after the age of eighteen years (*97*). Of the 291 boys in Ramsey's study (*160*), 30 percent had had homosexual experience to the point of orgasm during adolescence. Finger (77) has reported that 27 percent of all male college students admitted homosexual experience. Kinsey's (*109*) estimate of male homosexuality is somewhat higher. He says: "In these terms (of physical contact to the point of orgasm), the data in the present study indicate that at least 37 percent of the male population has some homosexual experience between the beginning of adolescence and old age."

Figures of incidence in young children are few. Ackerson's data (*10*) show approximately 5 or 6 percent of boys exhibited problems of homosexuality, but practically no girls. Kinsey's data (*109*) indicate that, by the age of 13 years, 12.6 percent of boys have had experience of this sort. Kinsey (*110*) states that some of the females in his sample recalled "specifically erotic responses to other females" at ages of three and four years; 5 percent of his total sample of females showed "homosexual arousal" by 12 years of age but only 1 percent had any homosexual experience by that age. The incidence of homosexual experience in the group of females increased gradually until the age of thirty when it reached 17 percent. Davis (*56*) found that 51.2 percent of 1181 unmarried women who were college graduates admitted having homosexual experience. Of these, 43.5 percent began such experience before going to college and 35.5 percent during college. Kinsey (*110*) also found that homosexuality among females is related to educational level, with incidence increasing as years of education increase.

It is clear, therefore, that homosexuality is not an exclusively male problem and that a considerable proportion of both sexes have had such contacts and experience. In young children, homosexual practices are frequently one way of securing sex experience and may have no greater significance. Bakwin and Bakwin (*22*) feel that few "homosexual" children have had actual sex experiences. The boys dress up in women's clothes; they experiment with nail polish, rouge and lipstick; or they may wear ornaments and jewelry; or they may posture like girls. Such behavior by boys is very likely to yield immediate attention while, as Bender pointed out in staff conferences at Bellevue Hospital, the young girl of today can act and dress like a boy without censure or punishment by the parents. It thus appears that homosexual behavior in younger children is likely to take a less overt form than in adults.

A form of homosexual behavior is found in the intense "crushes" or love affairs not involving physical intimacy between members of the same sex. These are a great deal more frequent among girls than boys.

They may be mutual between girls of a similar age, or they may be one-sided loves of a younger girl for a teacher or older woman. If not mismanaged by provoking the child's resentment through interference or ridicule, and if overt practices do not develop, these "crushes" usually disappear spontaneously.

In their study of homosexual problems in children, Bender and Paster (*29*) concluded that this behavior emerges when the child imitates a homosexual parent of the same sex who is greatly admired and the other parent is ineffectual; when there is a strong identification with the parent of the opposite sex; or when there is a delayed identification with the parent substitute of the opposite sex following a period of institutional care.

Correction

The basic prerequisite for prevention of sexual problems is a process of sane sex education. When information is provided in a wholesome manner by the parents, the child is less likely to seek his knowledge about sex in socially undesirable ways. Punishment and reprisals for such behavior which is considered offensive by the parents should be avoided when the prime motive appears to be curiosity. Parents should avoid making the child feel he is different from other members of the same sex. Problems are likely to emerge when a parent cannot conceal the disappointment of having a boy when a girl was desired or being presented with a girl when extensive plans and desires were concerned only with an anticipated boy. Some mothers refuse to have boys' hair cut and keep it long and in curls until it is a source of embarrassment for the child. In one instance, a mother refused, for some time, to name her boy because she had insisted on having a girl and referred to him as "Baby girl B"!

Frequently, parents who are alarmed because of fears that the child will not "grow up normally" bring him to the clinic at the slightest sign of what they feel constitutes a problem—even if the child is merely displaying normal curiosity. Other parents are alarmed because the child's behavior touches upon their own problems concerned with sexuality. For example, one father, who was struggling with strong homosexual attractions within himself, brutually punished his boy who said he wanted to be a girl and wore his sister's dresses.

Some children may resort to apparently homosexual behavior in a manner which assures them a great deal of attention, even though the parental reactions are not of approval. In some cases, when the child is ignored and feels overtly rejected, the display of such behavior apparently is meant to deliberately provoke attention of some kind by the parents. Parents who feel anxious and threatened by such acts because of their own problems tend to become greatly disturbed and often take drastic measures with the child.

Bender and Grugett (*30*), investigated the after effects of sexual difficulties in children who had had atypical sexual experiences. The group consisted of individuals who, 11 years earlier at ages of five to twelve years, had been sexually involved with adults in situations ranging from fondling to intercourse. These were attractive children of average intelligence who had shown "less fear, anxiety or guilt than might be expected." The investigators were struck with the probability that these children had been the seducers, not the seduced. They found that the sexual problems were only part of general behavior problems which had not been serious enough to warrant psychiatric attention. After the follow-up study, it was concluded that ". . . the sexual incidents occurred when the process of individuation had encountered interference, whether from external conditions or internal deficiencies . . . and . . . when given the opportunity, the sexual preoccupations and practices were abandoned."

In general, sexual problems occur during the process of development as other problems may occur; but when the conditions leading to the development of these difficulties are corrected, the behavior itself tends to disappear.

NEGATIVISM AND DISCIPLINE

Common complaints which the clinical psychologist encounters are stubbornness, disobedience, and negativism. Bleuler (*39*), who had discussed the theoretical and psychiatric aspects of this behavior, points out that it is really a complex in which all symptoms are similar in that the expected things are left undone, or exactly the contrary is done.

In one of the earliest studies in child psychology, Baldwin (*24*) called attention to this type of behavior in children. Since then, and especially in connection with attempts to test young children, considerable attention has been directed toward the problem. Binet and Simon (*36*) pointed out, in the earliest days of psychological testing, that many children around three years of age "remain silent and will not reply even to a question which they understand." Leby and Tulchin (*121*), in a study of nearly one thousand children at Better Baby Conferences held at county fairs, found that complete resistance or opposition to the requirements of their test situations began as early as six months. The greatest frequency of negative children was found at 30 percent of the children between 30 and 40 months of age, after which the frequency greatly decreased. When the frequency of partially and completely resistant children was combined, the maximum for boys was at 30–35 months and for girls at 18–23 months. These figures were both approximately 50 percent of the children at those ages. In a more intensive study of a smaller group the same investigators found that the most intensive resistant behavior occurred at the same ages as the maxima in the earlier study. The findings of this study have been substantiated in all essentials by the work of Goodenough (*91*), Nelson (*145*), and Rust (*175*), all of whom found resistance in test situations occurring more frequently at the earlier ages.

Negative behavior in situations other than psychological testing has also been investigated. Reynolds (*165*) set up a series of play situations utilizing blocks, in which she attempted to arouse negative behavior in a group of 229 children. Some of these children made no refusals, and even those with the highest negativism scores did not always refuse. The product-moment correlation between chronological age and negativism score was -0.53 ± 0.03, but between I.Q. and the score the r was only -0.09 ± 0.04. The negativism scores were unrelated to height-weight index, sex, or educational background. Caille (*47*) found the maximum of resistance to playmates in a nursery-school situation to occur close to the third birthday; in fact, three-year-olds showed twice as many cases of resistance as two-year-olds.

In her study, designed to investigate the interaction of mother and child, Bishop (*37*) observed various degrees of negativistic behavior in a group of 34 children from 3 years 4 months to 5 years 7 months of age. The experimentally controlled conditions allowed free play by the child in the presence of the mother. Fairly high positive relationships were found between directing, interfering, critical behavior by the mother and negativism on the part of the child. A lack of interest in the child's activity and failure to participate in his play, which might be interpreted as rejection, also was related to uncoöperative resistant behavior in the child. Conversely, less forcible maternal behavior, such as suggestion, was positively related to "measures of wholehearted coöperation" by the child.

In clinic case studies, Ackerson (*10*) reports that a definite maximum for negativism occurred at four years for both boys and girls. Among girls there was also a definite rise at ages sixteen and seventeen. Observation by Hetzer (*99*) and by Hurlock and Sender (*103*) suggest a period of negative behavior in boys and girls during adolescence.

The correlation of negativistic, disobedient behavior with certain chronological ages does not explain such behavior. The frequency with which it occurs in children and the variety of situations in which it has been noted indicate that negativism, during certain periods of development, is a normal occurrence. It reflects a conflict with social demands. It is generally believed that practically all children go through a longer or shorter period, usually between two and four years of age, in which they exhibit resistance or outright rejection of the requests or demands by others. This is thought to indicate the beginnings of the child's assertion of his own personality and his resentment of domination by others. He is struggling with the awareness of self, striving for independence. Reynolds (*165*) also points out that some cases of negativistic behavior are quite probably the result of a conflict between the child's activity and interest of the moment and the imposition of a parental command. In these and other situations the refusal may appear to be more severe than it actually is. With his limited vocabulary, the two-year-old says, "No!" or "I won't," whereas the four-year-old softens the refusal by saying, "In a minute" or "As soon as I finish." If parental reaction to this behavior is unsympathetic and shows misunderstanding, definite antagonism may be aroused in the child and the possibility of continued contrariness and stubbornness is increased.

The prepubescent and adolescent negativism that has been reported probably has a somewhat different basis. Passive negativism, shown in apathy and avoidance as well as in simple refusal, may be the overt expression of feelings of inferiority and inadequacy, or it may be a protest against what the child believes are the injustices of parents. Actively negative behavior, shown in doing the exact opposite, in aggressive refusal, and so on, is usually a protest against what the child conceives to be interference with his freedom of action. Both imply that there is conflict between the child's desires and self-conceived needs, and the requirements imposed by those in authority or by the social conventions.

Although negativism during childhood is normally expected, the resolution of this conflict with authority also is expected. Persistent resistance and disobedience indicate a failure to learn and to accept the social standards of conduct in regard to authority. This failure is often based on essentially inefficient methods used by parents in their training of the child.

Inconsistency in treatment of the child lays the foundation for subsequent negativism and disobedience. The young child is beset with a multitude of confusing regulations. He must learn to thread his way through these rules of conduct maintaining the inconsistencies of our culture itself. Learning this culturally approved path by the child requires careful guidance and endless patience on the part of the parents. He must have confidence in himself but must not boast. He must not lie yet be tactful and considerate of the feelings of others. Independence and self-assertion are held up to him as virtues yet conformity is forced upon him from all sides. The energetic, mischievous, daring behavior which is expected of the child by his peers is not tolerated at home, particularly in the presence of visitors, when he is expected to act like a "little gentleman." Despite such confounding complexity, the child does learn the devious paths of conformity and obedience—providing that he understands what is required of him and that he is taught the acceptable limits of behavior in various situations.

Parents may be inconsistent even in regard to minor aspects of everyday behavior. Today the six-year-old is allowed to ride his tricycle through the house, but tomorrow he is stopped because the floor has just been swept. On one occasion he is given a magazine from which to cut pictures, and at another time he is severely reprimanded because he cuts from a current magazine. Many similar circumstances will suggest themselves. The inconsistency is not in forbidding the activity the second time, but in forbidding without any explanation. The child is expected to obey simply because it is the parents' prerogative to command. One mother reacted to her three-year-old boy's adventures in crossing a forbidden street by whipping, threats of whipping, cajoling, coaxing, screaming, and even on occasion paying no attention at all. Such inconsistency makes it impossible for the child to learn what can and what cannot be done.

Inconsistency in discipline may also come about through parental dissension. The father is lenient with the child, the mother strict, or vice versa. There is no agreement between the parents on permissible actions, or on methods of dealing with acts not permitted. The child soon learns to take advantage of such disagreement and he "plays one against the other." He is not disobedient; he merely obeys the parent who allows the activity in which he wishes to engage.

In any discipline, at any age, the same extremes of leniency and strictness make for disobedience. While parents who are too lenient may be willing to suffer the consequences of their training—or lack of it—in the undesirable and uncontrolled behavior of their child, that same child will ultimately find himself in situations that *must* be obeyed. Failure to obey in those situations will result in conflict with the police, with employers, with military services, and may have serious consequences. The child, if left entirely to himself, will find it difficult to learn how far he can go with impunity in a specific situation. He is likely to "push the limits" in his attempt and find himself continually in difficulty. On the other hand, the excessively stern parent may exact an outward obedience; but at the same time he builds up a smoldering, inhibited resentfulness and hate which almost inevitably make themselves felt in the child's attempts to adjust to the world. He does the child no service in restricting his activity but he does make it difficult for him to develop confidence in the ability to think for himself when he rigidly demands unquestioning obedience.

Correction

Any attempts to handle negativism and disobedience *must* have full, understanding coöperation of parents and others who have charge of the child. We must first have a clear and complete picture of parental disciplinary measures. When these are of the kind known to be unsatisfactory, the parents must be taught better ways. Direct dealing with the child will center upon finding the reasons for his attitudes and behavior, and guiding him in forming more desirable ones with or, if necessary, without his parents' coöperation. Where emotional conflicts exist because of parental behavior these must, of course, be dealt with first.

Complaints of negativism in the preschool child must be met with assurances of the normalcy of such behavior, and the possible harm of unwise handling. Make as few demands on the child as possible, and when those made are met with refusal, disregard the refusals while gently but firmly insisting upon his carrying out the necessary injunctions. Give him time to discover whys and wherefors, and freely explain motives and reasons for commands. Normally, the period of preschool negativism lasts only a few months or a year at most. Although this may seem like a long time to the parents, the manner of handling the child at this time is of great significance in his later life.

Treatment of disobedience demands consistency in discipline, avoidance of extreme measures, and parental coöperation. Disobedience is frequently justified because parents make unreasonable demands, often as an expression of an assumed, but unreasonable, authority. Children are not property, but human individuals, who must be helped in growing up. Parental demands must be within reason, or the child cannot be expected to obey. It should not be expected of a child to display judgment which is beyond his period of development. Penalties may be imposed for specific acts of disobedience. But the parent must not fail to reward the child for good behavior as well as to punish for undesirable behavior. Whenever punishment is utilized, it should be made clear to the child as to the reasons for being penalized and the desired activity be clearly shown. Corporal punishment should be avoided. Too frequently such punishment becomes the occasion for the parents' release of anger and results in undesirable reactions by the child. Because of the lack of any demonstrated value in whippings, and because they are seldom commensurate with the offense, it is better to avoid them entirely. Discipline should not be completely lax nor excessively strict; it is most effective when it is consistent, firm, but gentle.

PSYCHONEUROSIS AND PSYCHOSIS IN CHILDREN

The traditional psychiatric classifications continue to be applied to behavioral disorders in children. In Pearson's diagnostic classification (*152*), the categories include acute and chronic anxiety states, anxiety hysteria, conversion hysteria, organ neuroses, compulsion neuroses, character neuroses, psychoses, etc. The classification recommended by the American Psychiatric Association (*9*) includes psychoneuroses of the hysterical type, the psychasthenic type, the neurasthenic type, the anxiety type; and it specifies psychoses with somatic diseases, with epidemic encephalitis, with juvenile general paralysis, manic-depressive psychosis, dementia praecox, and undifferentiated psychosis. Ackerman (*9*) states, "The common symptom pictures of children do not display anything like the stability and consistency which is characteristic of adult symptom pictures." However, in a symposium on "current problems in psychiatric diagnosis" (*9*, *63*), dissatisfaction with current psychiatric classification of pathological behavior in adults was clearly expressed. Hoch (*63*) bluntly says that "the whole psychiatric classification at present is unsatisfactory." Hoch also points out that, "In the light of our present-day knowledge it will have to be newly evaluated how far normal neurotic and psychotic disturbances differ from each other, qualitatively, quantitatively, or both." Diethelm (*63*) attacks the general classification of psychosis, expressing doubt of its utility and saying that "it must be the task of psychopathologists to bring the issue to an open and critical review, so that the term, psychosis, will disappear from psychiatric usage and literature, with the possible exception of a legal application."

It therefore appears that classification of psychoneuroses and psychoses in children and in adults do not consist of satisfactorily separate, adequately distinguishable categories. Both of these terms connote behavior aberrations that differ in degree, rather than in kind, from the personality problems with which these chapters deal. Such problems, when they have affected personality organization and functioning, are the end points of deviating behavior development. The stress should be on the observed behavior and not on a diagnostic category.

It is not considered within the scope of these two chapters to include a detailed discussion of the problems which have been classified as psychoneuroses or psychoses. Although the clinician should have an adequate knowledge of these problems, the frequency of occurrence of these disorders is very small (*88*, *96*, *131*) and the great bulk of the cases in the clinic will be concerned with problems such as have been discussed here.

ILLUSTRATIVE CASES

When one reads the records of children seen in the clinic, or the cases which are published, one can see the lack of specificity in the nature of the problem behavior. The following have been selected as illustrations of cases typically seen in the clinic. They are not meant to match any of the specific problems previously discussed. Some of the accounts are more complete than others and they are written from different points of view. They are presented without comment.

Case No. 12 (Richards, *168*). A. B. was a girl of nine years when she was brought to us by her foster parents because of persistent lying, petty stealing of small change from home and school, aggressive indifference, Bolshevistic attitude in school, and autoeroticism. The patient was an illegitimate child who was given for adoption at two years by a child-placing agency to Mr. and Mrs. B., who were childless. She had a normal development, so far as neurotic and physical data were concerned. At four the foster parents began to notice the above complaints and took her to various doctors without improvement.

Examination of the child showed a physically satisfactory girl, with an I.Q. of 125. She admitted all the accusations against her with an attitude of almost abstract indifference. The parents gave a perfectly smooth story with regard to training tactics and home influences, attributing all difficulties to bad inheritance. The child was placed for a period of study in the neutral environment of a boarding home, far enough away from Baltimore to cut off parental contacts, the parents agreeing not to visit her for a month. Two months here revealed the real facts of the case. The parents insisted on coming once a week, claiming that they could not bear the separation; they sided with the child against the boarding mother, who was attempting to carry out therapeutic suggestions given by us. For example, in an effort to interest the child in active play, to offset the autoerotic activities, she was dressed in simple clothes, such as gingham dresses and sturdy footgear. A. B. rebelled in favor of her former dainty dresses and light pumps. She refused to walk half a mile to school with the other children, saying that she was accustomed to being carried in her father's car. Her conversation showed familiarity with beauty shops, movie stars, a popular love serial running in the local paper, and so forth. One day the foster mother arrived, and finding the child disheveled in a rough-and-tumble outdoor game, rebuked her for so forgetting her parents as to behave in such an unladylike manner. I had a long talk with these foster parents of A. B., frankly telling them that they must choose between the health of this child and their own standards of foolish vanity which they wished to have exemplified in her. They insisted on picking on the unattractiveness of the boarding home, and finally took A. B. to Atlantic City for a month, to make up to her for what they construed as "ridiculous punishment." Our own contact with the case closed, and since then we have heard only indirectly of the child. A high-school principal telephoned me that she was on the point of expelling A. B. as a bad moral influence. (She had left school one afternoon with one of the boys and stayed out all night.) This teacher had asked the parents to bring the girl to us for examination, but they had refused, saying that they had already consulted our clinic and received no help whatsoever. A few months later the child-placing organization from which they had adopted A. B. wrote me that these foster parents were trying to take legal measures to return her to the organization as a "degenerate." Meanwhile these same parents had been given by the child-placing organization another little girl, "to try for a few years, with the view of adopting her if she proved satisfactory." She was of good parentage and as pretty as a picture, so the organization told me. Last summer they returned this child, now eight years old, to the child-placing organization, saying that she had developed all the distressing behavior traits of the unlucky A. B. Examination of her revealed the same picture presented by her foster sister almost four years before.

It was hard to make this organization, or any other intelligent person or group of persons, realize that a home so satisfactory from the standpoint of hygiene, economic sufficiency, and church and club affiliations could be so absolutely demoralizing in its subtle emotional influences. It is indeed hard to put the latter into words; yet the two children reflect parental attitudes and conflicts that are unmistakable. The foster father is a hard-working man who has struggled to get on in life and keep up to his wife's expectations. Within the past few years their financial status has improved greatly. The foster mother is a woman who impresses one as making heroic attempts to put her best foot forward in every direction. One feels that clothes, household furnishings, and car are just a little bit better than she can really afford. It is she who undoubtedly sets the family living and social standards.

To furnish material over which she could better drape her vanities, she selected two pretty, attractive little girls, whom she tried to convert into French dolls. In her simplicity she forgot that these dolls were receptive personalities, richly endowed with the power of imitation. They copy her scornful attitude toward social inferiors, her overbearing manner toward servants and tradespeople, her distaste for and revolt against the irksomeness of routine, expressed in many a subterfuge. But when these habit responses are turned in her own direction, the foster mother becomes alarmed, and rationalizes her failures by blaming bad inheritance for the unhealthy behavior trends. For example, she would have A. B. punished for lying when she herself promised in the child's presence not to visit her but once a month in the training home to which we sent her, and then went there regularly once a week.

Case No. 13 (Rogers, *171*). John came from a slovenly home in which there was little or no discipline. At the time that he and his sister, aged seven and ten, respectively, were removed from their mother because of her flagrant immorality, most of John's life had been spent in "running wild" in a very quesable neighborhood. The home situation had been such as to stimulate in the boy an overwhelming curiosity in regard to sex. The mother had lived with several men, and John had spent hours at the keyhole watching his mother and her latest companion, or the actions of the boarder and his sister. An atmosphere of filthy sex talk in the home added further elements to his fund of information, and even this was supplemented by spying on older boys and girls in the neighborhood. John early learned that his sex knowledge gave him a source of power and he was not slow in using it. He achieved a reputation among children of his own age, not only for his talk, but for his actions. He had persuaded several of the small girls in the neighborhood to engage in sex experiments with him. A complaint was lodged with the police when he initiated two other boys in various sex perversions. His language was a scandal in the neighborhood, so much so that even the firemen, with whom John loved to lounge about, chastised him on several occasions as an aid to public morals.

When seen in the clinic, it was felt that John was more saturated with an unwholesome and smutty attitude toward sex, and was more aggressive in sex matters, than any boy who had ever entered the department. Within a few moments after his introduction to the psychologist, he was inquiring whether that gentleman was married, and whether he slept with his wife!

The psychological tests showed that John, in spite of his alert manner, was a very dull boy, and this, combined with his attitude toward sex, made the outlook most unfavorable. It was felt that whether he was placed in a foster home or an institution, he was certain to "corrupt" the children with whom he came in contact. It was a very dubious experiment, and because of his extreme youth it was decided to place him in the Thompson home.

The fear of John's influence seemed justified the first day of placement. Mrs. Thompson had been forewarned as to John's behavior, but even she was scarcely prepared to hear a burst of obscenity directed toward the social worker as that individual started to drive away from the home. John was using his best means of gaining attention and he was highly satisfied to see the gaping astonishment on the faces of the other children. Mrs. Thompson immediately talked to John alone and told him in a kindly, but firm, manner that her boys did not speak like that and that if she ever heard such language again, she would wash his mouth with soap. This was the first and the last obscenity that John used as an attention-getting device. To be sure, when aroused, his swearing was extremely colorful, but this, too, gradually came under control. He did try other means of getting attention, as might have been expected. He began to tell "tall tales," which the foster mother met by replying with even wilder statements and then laughing away both as jokes. She refused to consider them as lies, and hence made it easy for John to give them up. She also gave him ample opportunity to gain attention in other ways; she asked him to perform little tasks for her; she praised him liberally when he brought home a good school paper; she told him of the improvement he was making.

In four months Mrs. Thompson was able to report that John was no longer swearing and was very proud of his progress along this line. She could also say that at no time had sex talk or sex practices constituted a problem with John. When his previous behavior is recalled, this seems nothing short of astounding.

A year after John's placement in the home, he was restudied at the clinic. Without a knowledge of his past, it would have been impossible to recognize this jolly, healthy eight-year-old, full of amusing stories about life at "home," as the grave problem of the previous year. He told of earning his spending money, of the fun they had at Christmas, of his responsibility for wiping the dishes, in a frank, spontaneous fashion that seemed to have nothing in common with the smirking, sophisticated attitude of his first clinic contact. Even the memory of his own home seemed to have become dimmed and uncertain. He told the interviewer confidentially that he had had "another home," but regarded Thompson's very definitely as his "real home." To cap the climax of the transformation, John spoke with genuine horror of a boy on their street who actually swore!

Three and a half years have slipped by and John's excellent record continues. Nearly eleven years old now, he has developed into an attractive, friendly boy, with a very winning smile. He is truthful and dependable, though he is full of life and has to be handled with a firm and consistent hand. He is in fourth grade, doing "D" work, which is all that could be expected of a boy of his mentality. He has developed an interest in nature study, and enjoys working with tools. He is liked by the other boys, and when Mrs. Thompson chose two boys to go on a trip with her as a special treat and a reward for good behavior, John was one of the boys.

Case No. 14 (Richards, *167*). This boy of nine was brought to our dispensary in November, 1920. He is the fifth in a family of six boys. The parents are Russian Jews who came to this country shortly after marriage and, in spite of rearing a large family, have managed to establish themselves in a small, but fairly well-paying, tailor's business. The four older boys went through the lower grades and are working, so that the family budget is comfortable.

The parents describe themsleves independently as "nervous" and "not so strong," but in spite of constant complaining, there has been no real incapacitation. The father of late years has been seeking doctors and patent medicines for "bladder trouble." The mother has been a frequent visitor in various departments of our Hopkins dispensary, where "palpitation" has figured largely in her complaints and "neurasthenia" in her diagnoses. The older boys glided through school and family training without acquiring the evidence of much supervision or direction. Each left school and got work as soon as he was eligible, proclaiming his emancipation from authority in ways that made him a desperate hero to his younger brothers. The parents attempted to deal with this insubordination by loud arguments, empty threats, tears, and supplications, so that one could not cross the family threshold without being definitely conscious of a spirit of contention.

The patient's personal history was relatively uneventful. There has been some enuresis and night terrors in his background, but their occurrence had either been too transient or too slight to elicit a voluntary recital from the parents. His school career included a repetition of the first grade, the result of poor attention, mischievousness, and irregular attendance. When out of school, the child played constantly on the street. He was in the habit of going to the movies almost daily, which made his bedtime about 10 P.M. As to personal traits, one could say that the patient was spoiled, but not disagreeably so. He got his own way at home by impertinence and sly disobedience, at school by clever affability, and on the street by "scrapping." In short, his behavior reactions were so like those of his brothers and the neighborhood boys that neither parents nor teachers noticed anything remarkable about him until the onset of the complaints for which he was brought to our dispensary. The story was that three weeks before, while in school, he had felt faint, dizzy, weak, his extremities had grown cold, his heart had beat fast "like a hammer," and he had thought that he was going to faint. The feeling had passed off in a few minutes. After a second attack in school several days later, his mother had been obliged to stay with him day and night for fear that he was going to have another spell. Her impatience with this tyranny and her fears for the child's health were reflected in the remark: "All day he hollers, 'Mother, I die!' and keeps his hand on his heart."

Examination in the pediatric dispensary was negative. Questioning as to the events that preceded these attacks brought out the fact that the day before the first "spell" in school, the teacher had given a health talk to the children, and stressed the importance of care in eating fruit lest the seeds and pits "go down the wrong way and kill you." In some way the child got the notion that if an apple seed slipped down his trachea instead of his esophagus, it would be carried by the circulation to his heart and kill him. Childlike, he had not confided his fears to any one. The wisdom of his conduct did not seem so questionable when, later on, the physician began to explain the situation to the mother and elicit her coöperation. Her first impulse, on hearing the story, was to punish the child for being so "dumb" and "crazy" as to cause her all this trouble.

Therapeutic adjustment. The patient was assured as to the impossibility of his fears being realized, and the parents were urged to ignore his complaints without ridicule, teasing, or punishment. The teacher also was more than eager to obtain and act on a new point of view. The patient had no further attacks of palpitation and faintness, but did show a tendency to cling to his mother, especially before going to sleep at night. The situation was not difficult to handle, however, and in a month's time the fears and complaining reactions were things of the past. He is now in the fifth grade, and his school life seems to be running more smoothly—perhaps as a result of increased interest and attention on the part of his teachers.

With the adjustment of the immediate child problem, our attention turned to the family group as a whole. The first step was a settling of the somatic status of its complaining members. The father was persuaded to go through the genito-urinary clinic of our dispensary. His examination revealed no abnormal condition, and he seems to have accepted this reassurance since he has not gone to any other physician for treatment and advice up to the present time. The oldest son was having friction with his employer for the amount of work put upon him. He was tense and irritable, and complained of fatigue. A thorough examination in the medical dispensary revealed a double heart murmur and myocardial insufficiency. Although there was no decompensation, his job did involve too much strain. The employer was quite willing to meet us halfway in the matter, and other work, better suited to the man's condition, was found, and has proved a success. The clearing up of this situation with the oldest son has done much to bring peace to the family circle.

The patient's mother still continues to complain, but without the drive of real worry. Her utterances on health topics give the impression of being merely social commonplaces.

Case No. 15 (Ebaugh and Lloyd, 67). Dorothy was brought to the clinic as a physical problem. She had a severe attack of chorea in 1923. After the choreiform movements ceased, she developed spells in which she would become stiff for an hour or more at a time. These attacks continued for several months. Most of the day was spent in crying or screaming. She improved and returned to school, but every trifling detail upset her and it was advised that she remain at home. Her mother had been giving her medicine for a week in order to get her quiet enough to bring to the clinic.

Dorothy is nine years old, but physically gives the appearance of a child of six. She is fourteen pounds underweight. When spoken to, she screamed and cried and jumped up and down, stamping her feet and shaking her hands, all the while holding her breath. She had to be carried bodily into an examining room. The mother was equally hysterical, crying, "Oh, doctor, this will make my Dorothy worse!"

It was impossible to make a psychological examination, but an easy matter to secure an enlightening history, as no less than twelve people waylaid the worker to tell her that Dorothy couldn't live long after "the way the father had gone." "In August she had a fainting attack which probably was tuberculosis of the brain." The father had died of tuberculosis, and Dorothy unfortunately had seen him having hemorrhages. Whenever she had a cough, she would become hysterical.

It was recommended that Dorothy be brought into the hospital for observation. The mother immediately gave her consent, but a lifelong friend suggested that she would never forgive herself if Dorothy should die away from home. The mother accepted the friend's recommendation, and we were able to be of no further service to Dorothy.

After the clinic left the village, Dorothy grew progressively worse and was finally brought to the hospital for observation. The family had been living in a town of four hundred people. After the father's death from tuberculosis, the mother's parents were able to care for the children during the day and the mother opened a beauty parlor in town to earn a living. Dorothy had always been a thin, frail-looking child, but had never been sick. When it was known that the father was tubercular, the neighbors began stopping Dorothy on the street and sighing, "Just like her father! Sure to go the same way." The result was that the child became hysterical. Her fears were progressive, and at the time she was brought into the hospital she had developed choreiform movements and was bedfast.

After two months of hospital care, Dorothy was as calm as any other child on the ward. She had, however, gained little weight, although a diet and rest routine had been followed. The mother had excellent insight and later came to the clinic as a patient. She stated that after three years of widowhood, she had been severely criticized for attending a dance. Dorothy is now in a children's play school, to remain there until the mother can secure employment in another community.

Case No. 16. (Dexter, 62). Robert is thirteen years four months of age, has average intelligence, and is in the eighth grade. He was referred by his teacher because of his quiet manner and his tendency to daydream. In the interview with the social worker, the mother spoke of her concern over his poor work and her regret that he had no friends, but otherwise she was aware of no difficulty.

The boy's father is a skilled worker, making a comfortable income. He is sociable, enjoying his lodge meetings and an occasional evening of pool. He prefers a younger son who is like him in personality and whose part he invariably takes against Robert.

Because of the father's attitude, the mother defends Robert, but is unaware of her partiality for him. As a girl, she wanted to join an Episcopalian sisterhood, but her mother would not allow it. She found marriage disappointing and discovered her only solace in innumerable church activities. Throughout the interview, she was inclined to resist the visiting teacher's assumption that Robert was unadjusted. When finally pressed as to the boy's recreation, she arose and, after exacting a promise that the social worker would not tell Robert, opened the door into a small adjoining room. In it the boy had constructed a chapel, with two small pews and an altar decorated by a crucifix, candles, and an altar cloth he had himself embroidered. Here he spends most of his time alone, conducting church services. He intends to become a minister. His mother believes that she is not responsible for his religious fervor, but at the same time recounts an experience that occurred a few months before his birth, when she vowed to dedicate the child to the church if God would induce her husband to cease scoffing at religion. She considers that her prayer was answered and that the child has naturally turned to the church.

When the social worker pointed out the possibility that her ambition for the boy would not be realized unless he learned to make social contacts, she agreed to urge him to spend more time playing outdoors with the boys and gave her consent to his joining the harmonica club at school. However, when the visiting teacher suggested that the chapel be dismantled on the pretext of her need for a sewing room, she objected that nothing would be accomplished, for Robert would only reconstruct the chapel in his own room. The harmonica club proved ineffective, for although Robert attended regularly, he took no interest in the other boys and used the harmonica at home to play hymns.

Since numerous attempts at relieving the mother's identification with the boy and the father's rejection of him were unsuccessful, and the child himself remained inaccessible to any discussion of his problem, the social worker turned to the minister and the family physician. The latter had known Robert since birth, and was amazed at what was going on in the home. He readily offered his coöperation and agreed to urge outdoor activity for the sake of the boy's health. The minister had wondered at Robert's intense enthusiasm, but was unaware of the lengths to which it had carried him. He exerted his influence to discourage the boy's absorbing interest and undertook to discuss his problem with the mother. He also tried to foster a friendship between his son and Robert.

Five months of treatment, for the most part carried on indirectly through the teacher, minister, physician, appear to have accomplished little more than a superficial change in the original situation. The parents' attitudes are too firmly fixed, and the boy's behavior is too deeply intrenched, to give way to the healthier family relationships that are necessary to free the boy from his emotional entanglement.

Case No. 17 (Ring, *169*). Mary Smith was a quiet, passive, eleven-year-old child who was rather shy and withdrawn. Her classroom work was somewhat uneven and . . . [her teacher] . . . was sure that her achievement was not up to the level of her ability. [During an examination] . . . she was observed pulling a strand of hair from her head . . . [Closer inspection revealed that . . .] she had a large bald spot on her head. When she was asked about her hair, the child flushed, was extremely embarrassed, and promised to try to control the habit, confessing that she did not know why she did this. It continued, however, and [the teacher . . .] sent for Mary's mother. Mrs. Smith evidenced deep concern, and told of having consulted several doctors who could find no physical basis for the symptom. Mrs. Smith readily accepted a referral to the Bureau of Child Guidance where Mary was given psychological and psychiatric examinations, and Mrs. Smith was interviewed by the social worker.

Although Mrs. Smith was primarily concerned about Mary's hair pulling, she revealed other problems, such as the child's fear of staying alone, poor sleeping habits, and marked jealousy of her younger brother, James, age 3.5. Mary had no friends of her own age and played with younger children with whom she could feel superior. She was hostile to James' friends, frequently putting them out of the house. Her obsession about hair carried over to other children, and she was constantly playing hairdresser to her younger friends. Mrs. Smith described Mary as a "mean, jealous, nasty child."

The parents were plain, hardworking people, both of whom came from backgrounds fraught with emotional and economic deprivation. Mrs. Smith, a tense anxious, repressed woman, had lost both parents in infancy, and was raised by an aunt who was overburdened by the cares of a large family. Mr. and Mrs. Smith's first year of marriage had been difficult, because, during the depression period, Mr. Smith had been unable to find employment. The constant tension, added to Mrs. Smith's inner feeling of tension and anxiety, blocked her in providing a secure emotional environment in which Mary could develop into a sound, healthy youngster. Mary was unable to tolerate the rivalry of a brother, and her symptoms developed shortly after the birth of her younger brother, during a period when her mother was hospitalized for pneumonia and Mary and James were placed with relatives for several months.

Mary's rating of 121 on the Stanford-Binet intelligence test placed her in the superior range of intelligence. Psychiatric examination indicated that she was a controlled child, inhibited in everything she did, and tending to stereotype in order to conform to accepted standards at any cost to her own freedom and personal desires. Her hair-pulling was a symptom which served several purposes. It provided an outlet for her tension, and was an unconscious means of securing attention from her parents.

It was decided that the social worker would work intensively with Mrs. Smith, since it was felt that she was ready to accept help. In this treatment situation our goal was towards providing a freer, more relaxed environment for Mary. This was to be achieved through two important facets of the environment, the school and the home.

In school . . . she needed from the teacher a relaxing warmth, acceptance, and encouragement in self-expression. She needed protection from competition with other children, to avoid repetition of the rivalry with her brother. Special privileges, such as monitorial duties, would be advantageous because they would help to strengthen her self-confidence. A symptom such as Mary's naturally caused concern to the adults, for if allowed to continue unchecked, it would evoke anxiety about the child's appearance. The teacher handled this by refraining from comment when Mary pulled her hair, since attention focused on the symptom increased the anxiety which produced the symptom.

In this case Mary did show definite improvement in class. She became more friendly and outgoing. When Mary's hair started to grow in, the teacher frequently remarked how pretty her hair looked, thus giving her a positive goal toward which she might work. The teacher encouraged Mary's interest in music and gave her a leading role in a class play. . . . The teacher in this situation proved to be a very valuable member of the treatment team. . . .

The mother . . . needed much supportive help. . . . Specifically, our aims were threefold: (1) To relieve the mother's anxiety and guilt so that she could be more comfortable and relaxed, (2) To provide specific help about helping Mary and further explore the mother-child relationship, (3) To understand more fully the interpersonal relationships in the family. . . .

The first thing Mrs. Smith accepted was that Mary could not help herself, that she pulled her hair not because of meanness, nor to aggravate her parents, but because of inner tension which she could not control. Knowing this reduced Mrs. Smith's irritation with Mary and helped her restrain her tendency to punish Mary for hair pulling. However, real understanding comes only when a Mother sees her child is presenting symptoms. With Mrs. Smith this was a very gradual process, and it had to be handled carefully in order that her own sense of guilt might not be increased. . . .

It was important to draw the father into the treatment plan, to give him more understanding and to elicit his help. Mr. Smith was essentially a warmer, more tolerant, more permissive person than his wife. He showed considerable sympathy and understanding with respect to Mary's problems, and it was easy to see why she turned to her father for affection. He was given help in understanding the real origin of Mary's symptoms and how he could best handle the situation.

After one month of treatment Mary's symptom of hair-pulling ceased completely, but she did occasionally scratch her head. It was during a recurrence of this scratching that Mrs. Smith came to her first true understanding of the basis of the child's behavior. . . . The problem of sibling rivalry was one which Mrs. Smith found difficult to face. Apparently it meant to her that she was to blame, and implied that she openly showed preference for James. She needed reassurance about this in terms of reality—namely that a baby does actually require close attention—which diverts attention from the older child. In addition, her own poor health during and following James' birth meant an additional deprivation for Mary. . . . She certainly reacted with considerable resentment toward her mother at the time of James' birth, and her mother's subsequent illness probably aroused fears that her own hostile wishes had caused her mother's illness, and that she (Mary) was being punished for her resentment against her mother and James by being separated from her parents.

At this point Mary's symptom has cleared up completely. She no longer pulls her hair. She has enlarged her sphere of social activities, made several new friends, has joined the Y, and engages in group activities of that organization. Recently she has been able to stay alone in the apartment with James, allowing her parents to go out together in the evening. Her sleeping habits have improved and she no longer has nightmares. Because she feels more sure of parental love her jealousy of James has decreased and she is no longer hostile to his friends.

Mrs. Smith has gained considerable understanding of Mary and no longer refers to her as a "mean, nasty child." The mother herself has become less tense and anxious, and can allow herself to be more permissive with Mary. She is moving in the direction of being less controlling and permitting Mary to grow up. . . .

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Chapter
10

Juvenile Delinquency

JUVENILE delinquency can, in the last analysis, be meaningfully defined only in legal terms. In essence such definitions include as delinquents children below a statutory age limit, which in most states lies between 16 and 20 years of age, who have violated a law or ordinance. The actual statemant may be elaborate as that in New York State where the statute (*20*) defines as delinquent,

> . . . a child (a) who violates any law or any municipal ordinance, or (b) who commits any act which, if committed by an adult would be a crime, except a child of fifteen years of age who commits an act which if committed by an adult, would be punishable by death or life imprisonment . . . , or (c) who is incorrigible, ungovernable or habitually disobedient and beyond the control of his parent, guardian, custodian or other lawful authority, or (d) who is habitually truant, or (e) who, without just cause and without the consent of his parent, guardian, or other custodian, repeatedly deserts his home or place of abode, or (f) who engages in any occupation which is in violation of law, or (g) who associates with immoral or vicious persons, or (h) who frequents any place the existence of which is in violation of law, or (i) who habitually uses obscene or profane language or who begs or solicits alms or money in public places under any pretense, or (j) who so deports himself as to willfully injure or endanger the morals or health of himself or others.

In much briefer form the Massachusetts law (*10*) defines a delinquent as: "a child between seven and seventeen who violates any city ordinance or town by-law or commits an offense not punishable by death."

While statutory definitions afford a clear-cut boundary between the delinquent and the nondelinquent they do not have a very useful psychological meaning. Because a given bit of behavior may violate law in one community and not in another, a child who indulges in the behavior is a delinquent in one but not in the other. This limited significance of legal definitions has led to the formulation of definitions in psychological or sociological terms. Barron (*1*), for example, points out three types of extralegal concepts. One he refers to as social psychological, in which the crucial element is "that the juvenile is delinquent because he conceives of himself as delinquent, whether it be through official action or by being pointed to as such in the neighborhood." In a second psychological definition the delinquent "is a child whose pattern of adjustment deviates from the code of conduct society is attempting to enforce." Thirdly he points to a cultural anthropological concept which would relate delinquency to violations of "conduct norms" rather than legal norms. To these may be added a fourth type found in psychiatric (or psychoanalytic) discussion which is clearly expressed by Alt and Grossbard (*9*) thus: "Delinquency describes the act rather than the doer. It has become increasingly evident to us that delinquency is not a distinct psychological entity but rather one form of emotional disturbance. It has the structure and function of any given symptom. It is built out of conflict, and it is intended to serve as a way of meeting or covering up a problem. As a symptom, its motivation is unconscious, or at least only vaguely sensed by the patient."

It is evident from this very brief consideration of definitions that from a psychological standpoint delinquent behavior is one with problem behavior in general and therefore is related to all the considerations discussed in the preceding chapters. However, as the legal questions do separate delinquents from other problem children, and as delinquents constitute an important, definable group of socially exceptional children, special consideration of them is warranted. In this chapter we shall be concerned with delinquents as legally defined.

Although delinquent behavior is legally defined, it must be clearly kept in mind that before an individual child will be considered delinquent his behavior must be seen and he must be apprehended. Further, within the legal framework it must be proved in court or adjudicated in some established manner that the behavior of the apprehended child was in fact delinquent. From this have arisen such qualified terms as official and unofficial delinquents, or more precisely in Carr's (*2*) terms (1) legal delinquents—those who have violated laws, (2) detected delinquents—those whose antisocial acts have been detected, (3) agency delinquents—those who have reached the attention of a social agency, (4) alleged delinquents—those deviants who have been apprehended and brought to court, and (5) adjudged delinquents—those who have been declared delinquent in a juvenile or other court of law. In the vast literature on juvenile delinquency the subjects are almost entirely in the last three categories.

TABLE 21. Central Registration of Juvenile Delinquents in Washington, D.C. 1943–4 (From Barron [*1*] after Schwartz [*53*])

(1) Reason for reference	(2) Children registered by all agencies for reason specified in (1)	(3) Children registered by juvenile court for reason specified in (1)	(4) Percent of all children registered for specified reason who were registered by juvenile court for that reason
Truancy	3488	177	5
Stealing	1870	1487	80
Acts of carelessness or mischief	951	733	77
Running away	819	16	2
Traffic violations	591	585	99
Being ungovernable	456	244	54
Sex offense	258	61	24
Assault, injury to person	187	148	79
Totals	8620	3451	420

That the number of juveniles in the first category is much larger than that in the fifth has been shown in several studies. Schwartz (*53*) has reported an investigation of central registration by seven social agencies in Washington, D.C. of all children who came to their attention during 1943–4 whose behavior might be dealt with under the law. Table 21 indicates for eight offenses the number of children registered in the central file and the number of this group who were also registered in the juvenile court. Of the total of 8620 children only 40 percent had been recorded in the court. The percentages in the several offense categories have a wide range, which suggests that certain types of behavior are considered more serious and are therefore more likely to be dealt with by police and courts.

During the Cambridge-Somerville Youth Study, Murphy, Shirley, and Witmer (*45*) recorded all violations committed by 114 boys between the ages of 11 and 16 and conservatively estimated that these totaled to at least 6416. However, among the same boys only 95 offenses became a matter of court record, i.e., barely 1.5 percent of the offenses were officially dealt with. In another study Porterfield (50) asked 337 students in three colleges in Texas to report anonymously whether they had committed any one or more of a series of 55 specified offenses which had been listed from the charged offenses of 2049 alleged juvenile delinquents in Fort Worth. One hundred percent of the college students admitted having committed one or more—the men averaged 15 and the women 5—of the offenses. Their acts had not been detected, nor had they been apprehended, therefore they had never been considered delinquents. The data of these studies are a demonstration of the weakness in psychological terms of the legal definition, and at the same time a warning that the data to be discussed concerning delinquents of necessity refer only to those who have been detected, not to all who in a strict sense have committed delinquent acts.

Incidence of juvenile delinquency. From the evidence discussed above, showing that by no means all children who violate laws are recognized as delinquents, it is clear that any attempt to estimate the size of this deviant group should be limited to data based upon some sort of official action. However, even data from these sources are limited to voluntary reporting of police or court officials.

The most extensive available figures reflecting police contacts with juveniles and adults are to be found in the *Uniform Crime Reports* of the Federal Bureau of Investigation. While these are based upon fingerprint records submitted to the FBI by local police agencies of violators of local and state laws they do reflect the magnitude of the problem. In the *Reports* for 1953 (67) there were 1,791,160 arrests reported from 1174 cities of 2500 or more population. Of the total number of arrests 3.2 percent, or 57,582, were of children under 15 years of age. An additional 92,224, or 5.1 percent, were between 15 and 17 inclusive; with 113,594, or 6.3 percent, being 18 to 20 years of age. Thus 14.6 percent of all reported arrests were of persons falling within the juvenile age maximum of all jurisdictions. Table 22 presents these data with additional details on the number of each age who were charged with a number of specified violations. While reports on arrests by age have been made for many years, earlier data are not directly comparable for the lowest age groups. In 1951 there were 3492 arrests reported in the "under 15" age group, while in 1952 nearly ten times as many—33,612—were reported. This

TABLE 22. Arrests by Age Groups: 1953

Offenses	Juvenile Groups Aged				Totals for All Ages
	Under 15	15	16	17	
Homicide	24	17	45	50	3,390
Robbery	545	378	485	708	11,786
Aggravated assault	332	197	295	453	21,114
Other assault	970	570	875	1,171	68,135
Burglary	9,339	3,010	2,982	2,839	36,829
Larceny	14,642	4,114	4,431	4,180	68,195
Auto theft	3,179	2,743	2,960	2,056	20,391
Embezzlement and fraud	77	46	85	223	11,877
Stolen property (receiving)	316	93	140	132	2,734
Forgery and counterfeiting	95	55	132	191	7,151
Rape	95	93	193	271	4,023
Prostitution and commercial vice	19	20	40	156	20,345
Other sex offenses	975	445	470	406	14,341
Narcotic drug laws	22	30	66	117	5,681
Weapons: carry, possess	399	262	377	508	13,185
Offense against family and children	611	152	225	241	19,616
Liquor laws	187	316	843	1,526	33,714
Driving while intoxicated	8	12	92	277	79,498
Disorderly conduct	4,749	2,388	3,714	5,143	199,548
Drunkenness	287	516	1,222	2,570	774,096
Vagrancy	326	266	731	1,776	75,754
Gambling	75	62	103	213	39,657
Suspicion	2,629	1,565	2,482	4,902	76,703
All others	17,681	6,996	7,499	7,282	183,348
Totals	57,582	24,346	30,487	37,391	1,791,160

TABLE 23. Juvenile Delinquency Cases Reported: 1950–1952

Year	Number of Courts	Number of Delinquency Cases	Average Number of Cases per Court
1950	410	73,411	179
1951	458	100,360	219
1952	586	139,358	236

suggests a change in the practice of reporting rather than a real change in number because the data for the same years for ages above 15 years are of the same order of magnitude.

Data showing trends in the magnitude of the juvenile delinquent groups are available from statistical reports of the U.S. Children's Bureau. The data in Tables 23 and 24 are from the report covering the year 1952 (*66*). In Table 23 the total number of delinquency cases disposed of by courts reporting are shown for the years 1950 to 1952. There is an appreciable increase in the average number of cases per court over the three-year period. A still longer trend is shown in Table 24 from the same report, which shows the number of delinquency cases disposed of by the same 206 courts between 1940 and 1952, and also the estimated population of children ages 10 to 17 during each of these years. The index figures are calculated with 1940 = 100 so that while the population was decreasing the number of court cases was definitely increasing. In 1940 the disposed of cases represented 0.21 percent of the child population, while ten years later in 1950 it had increased to 0.32 percent. For the United States as a whole the Children's Bureau estimates that in 1952 about 2 percent of children 10–17 years of age were dealt with as delinquents in juvenile courts.

TABLE 24. Juvenile Delinquency Cases and Child Population: 1940–1952[a]

Year	Juvenile Delinquency Cases No.	Juvenile Delinquency Cases Index	Child Population 10–17 Years of Age No.	Child Population 10–17 Years of Age Index
1940	39,440	100	19,115,000	100
1941	44,173	112	18,893,000	99
1942	49,300	125	18,674,000	98
1943	67,837	172	18,481,000	97
1944	65,076	165	18,287,000	96
1945	67,837	172	18,089,000	95
1946	58,371	148	17,902,000	94
1947	51,642	131	17,776,000	93
1948	50,546	128	17,683,000	93
1949	53,061	135	17,586,000	92
1950	55,504	141	17,431,000	91
1951	58,961	149	17,746,000	93
1952	64,927	165	18,239,000	95

[a] Juvenile delinquency cases reported from the same 206 courts which serve geographic areas including approximately 12 percent of the child population ages 10 to 17.

Frequency and types of offenses. Juveniles can and do commit all offenses which may be committed by adults, as well as a number, such as truancy or incorrigibility, which are specifically juvenile. While there are many monographic studies of delinquent groups which include information on the types of offenses committed (e.g., Healy *33*, Burt *19*, Glueck and Glueck *3*, *32*, Fenton *30*, Kvaraceus *39*, Merrill *5*, Powers and Witmer *6*, Porterfield *50*), the data from them are not directly comparable. Different categories are used and the allocation to the categories are not uniform. In earlier editions of this book a table was presented comparing percentage distributions for offenses found by Healy (*33*) in Chicago in 1909 to 1914, by Burt (*19*) in London in the early 1920's, and by Fenton (30) in California in the early 1930's. These studies, widely separated in time and space, showed a considerable similarity in the most frequently occurring offenses. Studies in the past 20 years have not changed the essential nature of the findings. Auto theft and traffic violations are the only offenses which are not found in the earliest studies. The exact percentages vary widely among the several studies but there is a consistency in the rank order of the offenses. Stealing is reported as the most frequent offense for boys in all studies. Truancy and running away are usually next, with incorrigibility following closely. Property destruction or malicious mischief ranks around fifth and sex offenses usually sixth or seventh. Other offenses trail these leaders. Among girls sex offenses take first and second place most often, with incorrigibility, running away, and stealing following. These rank orders are only approximations but they indicate the commonest offenses found among juvenile delinquents. The frequency of arrests shown in Table 23 agree in large measure with the rankings.

CHARACTERISTICS

In order to gain a better understanding of the general problem of juvenile delinquency, it is necessary to know something about delinquents as a group. Such knowledge may be of only indirect significance in the study of an individual case, but it does give the psychoclinician insight into conditions frequently met with. The literature published on sociological and psychological studies of juvenile delinquents is very extensive and the summary here can only select representative examples. The physical condition, intelligence, moral knowledge, school success, families, neighborhoods, companions, emotions, and other conditions of juvenile delinquents have been studied and restudied. There is a uniformity in the findings of these many studies which makes fairly definite certain characteristics of juvenile delinquents as a group.

Five extensive studies of large groups of delinquents are representative of the whole literature on this subject. Two of these are studies by Healy (*33*) and Burt (*19*). The third is the monograph report by Shelden and Eleanor T. Glueck (*32*) on 1000 delinquents studied at the Judge Baker Foundation in Boston. The fourth is the report by Kvaraceus (*39*) on 761 predelinquent and delinquent children studied at the Passaic, New Jersey, Children's Bureau. These four monographs appeared in successive decades 1915, 1925, 1934, and 1945. The fifth study, also by the Gluecks (*3*) which appeared in 1950, reports a ten-year study of 500 delinquents and 1000 nondelinquents matched by age, intelligence, national origin, and home neighborhood. The fact that they are in essential agreement on so many points, in spite of being based on groups separated geographically by thousands of miles and temporally by decades, argues that the characteristics of delinquent groups are stable. The following paragraphs present very sketchy summaries of the characteristics of delinquents related to the child himself, his family, and the community in which he lives.

The Child

Physical condition. Observations on the physical condition of groups of delinquents have been reported by a number of authors. Glueck and Glueck (*32*), among 967 of their group, found 56.7 percent in good physical condition, 30.2 percent in fair, and only 13.1 percent in poor condition. Similar findings are reported by the New Jersey Juvenile Commission (*47*), which found that of delinquents in New Jersey Juvenile courts 60 percent were in good, 25 percent in fair, and 15 percent in poor physical condition. Burt (*19*) reports poor physical development in 21.3 percent of his delinquents, but in only 5.5 percent in his control group of nondelinquents. Physical pathology was evident in 69 percent of his delinquents and in 54.7 percent of his nondelinquents. Kvaraceus (*39*) says that only 13 percent of the 750 delinquents studied in Passaic, New Jersey, had "observable physical defects."

Comparison of these percentages of physical defects with similar figures for nondelinquents indicates that such defects are not particularly characteristic of the delinquent. Surveys of school children show that as high as 70 percent have defects of one kind or another. The Gluecks (*3*) compared the frequency of occurrence in the delinquent and control groups of a long list of physical or health conditions and found no important significant differences. They say that "the view that delinquents are in poorer health than nondelinquents receives no support."

Constitutional body types as studied by Sheldon's (*50*) somatotype methods did show significant differences between the delinquent and nondelinquent groups studied by the Glueck's (*3*). Body measurements were made from photographs and specified indexes were computed. Seltzer (*54*) reports the details of these measurements which may be summarized: 17 of 21 basic lateral body ratios, 11 of 15 lateral-dimension indexes, and 7 of 10 indexes of body disproportion were significantly different between the groups. The delinquents were mesomorphic, i.e., muscular in build rather than ectomorphic (linear, thin) or endomorphic (round, plump), while the nondelinquent group contained no predominance of any type although ectomorphs were in excess.

Intelligence. Reports on the intelligence of delinquents based either on direct examination or on estimates of the frequency of feeble-mindedness have been legion. Conclusions from these reports have changed from earlier to later studies. Sutherland (*63*) over twenty years ago analyzed some 350 reports and pointed out that those published in the 1910–1914 period reported on the average that 50 percent of delinquents were feeble-minded. Fifteen years later, between 1925 and 1928 the average percentage had dropped to 20 percent. While there are wide variations in even more modern reports, the trend continues to find a smaller percentage of feeble-minded. Thus in seven studies of I.Q. distribution between 1925 and 1935 used for illustration in the first edition of this book the approximate median percentage of I.Q.'s below 70 was 13, while in the five studies shown in Table 26 the median percentage below I.Q. 70 is only 5. This trend can probably be best accounted for by the use of stricter criteria of feeble-mindedness and by the nature of the groups being studied. A conclusion that juvenile delinquents have become more intelligent during the past forty years is not warranted.

The intelligence test performance of juvenile delinquents presents a more complete picture of their ability levels than do estimates of the proportion of feeble-minded. Table 25 shows the I.Q. distributions found in five recent studies, and Table 26 lists the average I.Q.'s found in representative studies over a quarter of a century. In the first of these tables five studies published between 1945 and 1950 on delinquents who were in court or in institutions are summarized. In the last two columns the approximate median percentages for these five studies and for the seven earlier studies referred to in earlier editions of this book are compared. The variations between different groups are evident in these comparisons but it is clear that groups of delinquents studied after apprehension do tend to have test scores somewhat below the average of the general population.

The inferiority of the average test performance of delinquents is

TABLE 25. Typical I.Q. Distributions of Juvenile Delinquents

I.Q.	Kvaraceus (*39*)	Merrill (*5*)	Wedeking (*70*)	Eckenrode (*28*)	Gluecks (*3*)	Mdn. 5 studies 1945–50	Mdn. 7 studies 1925–35
Above 110	5.6	32	17.2	16	9.4	16	5
90–110	44.7	33	47.8	52	47.8	48	25
80–90	39.3	16	26.6[a]	18	24.2	20	27
70–80		10	6.0[a]	9	18.4	10	22
Below 70	10.4	9	2.4[a]	5	4.2	5	13
Test used	Binet	Binet	Binet and W-B	USPHS class.	W-B		
No. of cases	463	100	500	345	500		

[a] Ranges are below 65, 66–74, 75–90.

TABLE 26. Average I.Q.'s of Juvenile Delinquents

Author	Date		Average I.Q.
Burt (*19*)	1925	197 boys and girls	89
Healy and Bronner (*35*)	1926	4000 delinquents	90
Merrill (*44*)	1926	236 juvenile court cases	82
Armstrong (*11*)	1932	660 runaway boys	78
		1379 N.Y. Children's Court	73
		553 N.Y. House of Refuge	78
Fenton (*30*)	1935	400 Whittier State School for Boys	92
Livingston (*42*)	1935	407 Indiana Boys' School	89
Kvaraceus (*39*)	1945	463 Passaic Children's Bureau	89
Murphy et al. (*45*)	1946	61 no court complaints	94
		40 court complaints	93
Merrill (*5*)	1947	500 Los Angeles County Court	93
Durea and Taylor (*27*)	1948	109 boys W-B full	88
		W-B verbal	84
		W-B perform.	95
		Binet	84
Gluecks (*3*)	1950	500 institutional delinquents	92

shown also in the average I.Q.'s as listed in Table 26. A trend toward higher average I.Q. is evident in these data. Nevertheless, as a group, delinquents—at least those seen in courts or institutions—are a slightly inferior group in terms of intelligence test performance.

An analysis of intelligent behavior in qualitative and dynamic terms based on Rorschach responses interpreted by Ernest G. Schachtel is reported by Glueck and Glueck (*3*) for their matched groups of delinquents and nondelinquents. Eleven characteristics of intelligence are compared, viz. originality, creativity, banality, power of observation, unrealistic thinking, common sense, intuition, fantasy, oververbalization, methodical approach, and potential capacity for objective interest. In five of these characteristics there were no significant differences between the groups. In the remaining six there were differences significant at least at the 5 percent level. Very significant differences (1 percent level) were found for three items, with the delinquents exhibiting more unrealistic thinking, less common sense, and a less methodical approach. At the 2 percent level the delinquents showed poorer powers of observation, and a lesser potential capacity for objective interest. Finally, at the 5 percent level the delinquents showed greater oververbalization. These differences in intellectual functioning suggest the involvement of intelligence with the emotional or personality dynamics of the delinquents.

This brief résumé indicates that the delinquents who are in institutions, or who came before courts are as a group somewhat below average in intelligence, and their functional use of their intelligence is appreciably involved in their general personality dynamics. The evidence does not, however, allow one to conclude that inferior intellectual ability is a significant concomitant or a cause of delinquent behavior. This is not to say that inferior intelligence may not be an important etiological factor in certain individual cases.

Temperamental and emotional factors. All studies from the earliest ones of Healy (*33*) and Burt (*19*) agree that delinquents exhibit a high incidence of behavior indicating abnormal mental traits or deviant personality structure and dynamics. Thus 55.7 percent of Glueck and Glueck's (*32*) earlier cases gave indications of mental unbalance. Of these, 350 individuals showed markedly abnormal suggestibility, sensitiveness, impulsiveness, and the like; 137 had aberrations in personality ranging from psychoneuroses to psychoses. In their more recent study the Gluecks (*3*) have presented very extensive data on personality and temperamental structure and dynamics based on Rorschach responses and psychiatric interview. More consistently here than in any of the other areas in which they make comparisons the differences between the matched groups are significant. The data are too extensive to present in full here; of 49 categories from Rorschach analysis 38 were significantly different at the 1 percent level or better, and of 37 characteristics from the psychiatric interviews 32 were significantly different. A summary of the results of these comparisons is best given in the Gluecks' own words: "on the whole, the delinquents are more extroverted, vivacious, impulsive, and less self-controlled than the nondelinquents. They are more hostile, resentful, defiant, suspicious, and destructive. They are less fearful of failure or defeat than the nondelinquents. They are less concerned about meeting conventional expectations, and are more ambivalent toward or far less submissive to authority. They are, as a group, more socially assertive. To a greater extent than the control group, they express feelings of not being recognized or appreciated" (*3*, p. 275).

Healy (*33*) lists a total of 291 cases out of 823 in whom some mental condition, other than intellectual lack, played a major part in their delinquency. The association of behavior disorders with delinquency is high. Glueck and Glueck (*32*) found that 75.4 percent of their delinquents exhibited such behavior as nail biting, stammering, enuresis, gambling, masturbation, smoking, homosexual and heterosexual activities, drinking, and the like. Kvaraceus (*39*), on the other hand, reports that in only 20 percent of his group did the case records show "bad habits" or behavior problems such as restless sleep, lying, nail biting, sex play, temper tantrums, feeding difficulties, enuresis, and so on. The Gluecks (*3*) found that 95.6 percent of their delinquent group had exhibited school misbehavior in contrast to only 4.4 percent of the nondelinquents; 94.8 percent of the delinquents and only 5.2 percent of the control group had been truant from school. Powers and Witmer (*6*) report that teachers checked eleven traits in more than half of the "most delinquent" of their subjects as against checking them significantly less frequently, usually less than 25 percent, of the "less delinquent" subjects. The traits showing a significant difference are: restless, dare-devil courage, lack of interest in school, high or low moodiness, easy going, cruel, spiteful or sarcastic to others, attention easily distracted, talkative, high self-confidence, impulsiveness, and poor personal appearance. Courthial (22) discovered striking differences in emotional stability between delinquent and nondelinquent girls, while Durea (*26*) in a series of studies using the Pressey Interest-Attitude Tests has demonstrated differences in emotional maturity for both delinquent boys and girls. Jenkins and Glickman (*37*) classified 300 delinquent boys in the New York State Training School according to three types of personality structure empirically derived from earlier studies of child guidance clinic cases. Of this number 255 were placed in one or a combination of groups as shown in Table 27.

The evidence of the studies referred to is clear that consistent differentials are found in the emotional and temperamental characteristics of juvenile delinquents. Further, this is the one area of those discussed here which appear to offer a characterization of delinquents as a group.

Education. The educational achievement of delinquents is, as might be expected, inferior to that of nondelinquents. Fenton (*30*) reports that 47.5 percent of the boys at Whittier State School were retarded, whereas only 2.5 percent were accelerated. The New Jersey Commission (*47*) found 55 percent of the delinquents retarded one or more years. Glueck and Glueck's earlier (*32*) study showed that 84.5 percent of 935 boys were retarded one or more years; this compares unfavorably with only 37.8 percent of Boston school boys retarded. Only 1.8 percent of the delinquent group was accelerated. Among the delinquents studied, 397 boys had completed their schooling. Of these, 11.1 percent had reached only the fifth or a lower grade; 71.8 percent were in the sixth, seventh, or eighth grade, and 17.1 percent had entered the ninth grade or high school. Similar figures for Boston school children of the same age range show 1.4 percent in the fifth or lower grades, 5.3 percent in the sixth to eighth grades, and 93.3 percent in the ninth or high school. Family economic need was given as the reason for leaving school by 65.7 percent of the cases, and 15.1 percent said they left because of dissatisfaction with school; only 2.9 percent gave inability to do school work as a reason. In their analysis of matched groups of 500 delinquents and nondelinquents these same authors (*3*) report that the delinquents had an average grade attainment of 7.12, while the control group were significantly higher at grade 8.16. One-quarter of the delinquents had not attained higher than the sixth grade in contrast to only 10 percent of the controls. Merrill (*5*) found a significant difference of one year between her delinquents at grade 8.3 and the controls at 9.3 in spite of M.A.'s of 12.8 and 13.2, respectively.

TABLE 27. Personality Structural Categorization of Juvenile Delinquents

Category		Number
Unsocial aggressive	(A)	56
Socialized delinquent	(B)	78
Disturbed, overinhibited	(C)	63
A and B		18
A and C		14
B and C		20
A, B, and C		6

Kvaraceus (*39*), in a report on an agency operated under the auspices of a school system, has carefully analyzed the educational histories of the delinquents studied. He finds 43.5 percent retarded one-half year or more, in contrast to 17 percent of the total school population. Only 1.6 percent of the group had class marks of G (good) or better, whereas 64 percent of the city-wide grades had marks this high. Ninety-one percent of the delinquents did not have a single creditable school mark. These delinquents showed considerable transfers between schools; 71.6 percent had moved at least once, but only 49.8 percent of the general school population had moved. The Gluecks (*3*) also found that their delinquents had attended an average of 5.91 schools, while the control group had attended an average of 4.56 schools.

Negative attitudes toward school are consistently found in studies of delinquents. Table 28 presents the frequency with which attitudes toward school were found in delinquents and control groups by both the Gluecks (*3*) and Merrill (*5*). The similarity of pattern between these two studies of delinquents in Boston and Los Angeles is typical of other studies. For example, 67 percent of Kvaraceus' (*39*) group experienced dissatisfaction with school. Fenton (*30*) reports that of the 400 Whittier State School boys studied, 47.5 percent had been truant before commitment, 25.8 percent had disliked school, 18.8 percent had had conflicts with teachers, 14 percent had had difficulty with studies, and 11.5 percent had been conduct problems. Bartlett (*12*) found that 46 percent of 119 boys at the Indiana Boys' School had been truants from school before their commitment. The New Jersey Juvenile Commission (*47*) found that 35.8 percent of the delinquents expressed opinions on teacher unfairness which was explained variously as excessive discipline, personal discrimination, unjust accusation, lack of interest in child, impatience, and use of ridicule. The poor social adaptation to school which is uniformly evidenced in studies of delinquents probably reflects the personality characteristics of resistence to society's requirements which are otherwise evident.

TABLE 28. Attitudes Toward School of Delinquents and Nondelinquents

	Merrill (*5*)		Glueck & Glueck (*3*)	
Attitude	delinquents percent	controls percent	delinquents percent	controls percent
Good (readily accepts)	28.8	72.7	11.5	65.6
Indifferent	40.6	23.8	27.0	24.1
Poor (markedly dislikes)	30.6	3.5	61.5	10.3

Vocational history. Because of the limitations imposed by age we should expect juvenile delinquents to have a very limited occupational history. After-school and weekend jobs were reported by 84 percent of the delinquents and 78 percent of the nondelinquent controls in the Gluecks' study (*3*). There were no significant differences in the frequency or the reasons for working between the two groups both of which it should be recalled came from lower socioeconomic levels. However, there were differences in the nature of the work performed, as can be seen in Table 29. The high proportion of street trades among delinquents is the same as that found by the Gluecks in their earlier study (*32*). These data indicate that the delinquents were more frequently exposed to the viciousness of the streets and less frequently engaged in employment under some sort of adult supervision.

TABLE 29. Nature of Employment of Delinquents
(After Glueck and Glueck [*3*])

Employment	Delinquents	Non-delinquents
Street trades	58.2	36.7
Unsupervised jobs (errand boy, messenger, etc.)	21.8	24.6
Odd jobs	10.6	11.7
Supervised jobs (store clerk, office boy)	8.2	24.9
Factory work	1.2	2.1

TABLE 30. Percentage of Companionship in Commission of Delinquencies

Author	Description	Percent
Healy and Bronner (*35*)	300 cases	63.0
Illinois Crime Survey (*36*)	6000 cases of stealing	90.4
Shaw and McKay (*57*)	3517 offenses of 1886 boys	81.0
Armstrong (*11*)	660 runaways	13.5
	70 "unlawful entry"	84.3
Glueck and Glueck (*32*)	823 cases	70.2
Fenton (*30*)	282 boys	82.6
Kvaraceus (*39*)	761 cases	76.8

Companionship. Probably not more than one-fifth of the delinquents engage in their delinquencies alone. In Table 30 are presented the percentages of delinquents with companions reported by several authors. There is decided agreement among these investigations that usually the delinquent has one or more companions in his delinquencies. The apparent exception, 13.5 percent of 660 runaways given by Armstrong, is quite consistent because, by the very nature of the delinquency, one could hardly expect companions. Such data as these strongly suggest that companions are a significant factor in the etiology of delinquent behavior.

We read a great deal concerning gangs and their criminal activities. Various investigators report different proportions of delinquents belonging to gangs. These variations depend in part upon how a gang is defined. The Gluecks (*32*) say that at the Judge Baker Foundation a "gang" is defined as "a group of boys having a recognized leader, specific passwords or rules, meeting at stated places and planning antisocial activities." A group without such formal organization is a "crowd." On the basis of these definitions, they found in their earlier study that 7.3 percent of 978 boys were members of gangs, 18.9 percent indulged in crowd activities, and the rest did neither. The problem is quite different in their more recent study (*3*) where they found 56 percent of their delinquents were members of gangs and 21.2 percent were members of crowds, in contrast to 0.6 and 44.4 percent of the nondelinquent control group. In 98.4 percent of the cases the companions of delinquents were delinquent but only 7.4 percent of the nondelinquents had companions so classified. Sullenger (*62*), who defines a gang as a group organized as a play group, found that 41 percent of the delinquents in a small community were members. Burt (*19*) reports that 11.4 percent of 123 boys were members of a gang with three or more members, while among 74 girls not one was a member. Burke (*18*) found that 28 of 82 offenders between seventeen and twenty-one years of age from the Chicago Boys' Court were members of gangs. Among 26 confirmed offenders, fifteen were known to be members of gangs, while only five of 28 nonrepeaters belonged to gangs. These studies indicate that from one-quarter to one-third of delinquent boys, at least, are members of more or less formal gangs which have antisocial conduct as one of their activities, if not the most important one.

The group or club activities of delinquents in socially desirable agencies present the converse picture. Reinhardt and Harper (*52*) compared 40 delinquent with 40 nondelinquent boys of the same age. The nondelinquents belonged to all sorts of constructive clubs and organizations, many belonging to more than one. In fact, only five of these boys did not have any such affiliation. In contrast, 25 of the delinquents belonged to no clubs at all. The Gluecks (*32*) found a similar condition: 75 percent of

971 cases had never been associated with such organizations as the Y.M.C.A., Boy Scouts, supervised playgrounds, or social settlements. In their later group (*3*) they found no real difference between the delinquents and controls, as only 12.2 percent of the former and 10.2 of the latter had never attended any of the activities available in the extensive program in Boston. Kvaraceus (*39*) reports that only 8 percent of the Passaic delinquents were members of such organizations, in contrast to 40 percent of all Passaic children. Merrill (*5*) however, found 45 percent of her delinquents never participated in contrast to 23 percent of the controls.

The data on companions and club activities appear conflicting, but they are suggestive. Delinquents do gather in groups but more usually in groups the objectives and activities of which are not socially desirable. One can hardly say the delinquent is not socially adjusted, but his adjustment is to a peer group for which adult influence and restriction is usually at a minimum.

TABLE 31. Age of Onset of Delinquency
(After Glueck and Glueck [*3*])

	Age of 1st Misbehavior	Age 1st in Court	Age 1st Correction
Under 5	4.0		
5–7	44.4	0.8[a]	0.6[a]
8–10	39.2	27.6	26.6
11–13	10.6	45.8	45.0
14–16	1.8	25.8	27.8
Mean (years)	8.35	12.39	12.52

[a] Age 7 years only.

Age of first delinquency. That delinquency begins at a surprisingly early age is shown by the data in Table 31. These data from Glueck and Glueck (*3*) agree with other studies that predelinquent behavior starts at an early age although here the frequency is less than the 13.7 percent six years old or younger which the same authors earlier reported (*32*). However, more than a quarter of the delinquent group were in court and convicted before age 10.

The Family

Nationality and race. As early as 1900 Drahms (*25*) showed that in every census between 1850 and 1890 the proportion of foreign-born among juvenile and adult offenders was greater than the proportion in the general population. Koren (*38*), who analyzed the data more carefully, found that when the foreign-born, the colored, and the native-born whites were compared on a basis of age, the first two groups still had a relatively high proportion among juvenile delinquents. Practically all investigators who have considered the problem agree with Koren's conclusions.

Table 32 summarizes data from a number of studies which reported the parental nativity of juvenile delinquents. With four exceptions the reports show that over two-thirds of the delinquents had a foreign-born parent. The data of the U.S. Children's Bureau's (*65*) report on 68 courts from all parts of the country, and the recent studies of Merrill (*5*) and Glueck and Glueck (*3*) indicate approximately the same percentage native and foreign parentage. The fact that Negroes are not included in any of these four reports may in part account for the differences from other studies. Also the two latest reports show considerably fewer foreign-born parents than earlier ones do. It is sufficient to call attention to the fact that delinquents are frequently found to be of foreign-born parentage.

TABLE 32. Parental Nativity of Juvenile Delinquents

Author	Number of Cases	Percentage American	Foreign	Negro
Healy (*33*)	915	25.5	69.9	4.6
Edmondson (*29*)	102	26.5	66.6	6.9
Burke (*18*)	798	23.9	61.4	14.6
Shaw and McKay (*57*)	8141	22.2	68.7	9.1
Beane (*13*)	300	90.0	10.0	[a]
Glueck and Glueck (*32*)	976	13.2	86.8	5.7
U.S. Children's Bureau (*65*)	32,844♂	54.0	46.0	[a]
	5,168♀	63.0	37.0	[a]
Kvaraceus (*39*)	761	25.6	63.4	11.0
Merrill (*5*)	100	54.3	45.7	[a]
Glueck and Glueck (*3*)	500	42.0	58.0	[a]

[a] Only white subjects in group.

Foreign parentage, *per se*, is probably not the most significant fact. In the earlier data of the Gluecks (*32*) we find that native sons of native parents and foreign-born sons of foreign-born parents both contribute less than their share of delinquents, the former about 55 percent and the latter only about 35 percent of the expected proportion. In contrast with this are the native sons of foreign-born parents, who contributed about 2½ times as many delinquents to the group as might have been expected from their proportion in the total population. Similar findings have been reported by other investigators, and they have rather uniformly been interpreted as an indication of conflict between the Old World culture of the parents and the New World culturalization of the children. However, comparison of the matched groups studied by the Gluecks (*3*) shows that there was some cultural conflict between the delinquent boy and his foreign-born parent in 59 percent of the cases, with similar conflict in 58 percent of the nondelinquent group. The fact of foreign parentage or the conflict between the generations cannot be considered of etiological significance in general although they may be in the individual case. Thus, Nick, whose story is told by Shaw and McKay (*57*), at fourteen wanted to play ball with other boys of his age, whereas his parents wanted him to work. When he refused to do so they interpreted his behavior as downright rebellion, and tried to cure him by beatings. Such treatment led to running away from home, minor stealing from home, and severe temper tantrums.

Economic status. The concomitance between poverty and many kinds of social pathology has led many writers to claim a causal relationship. Such a relationship may exist in some cases but probably not in all. Burt (*19*) says that 16 percent of his delinquents were from families below the poverty line, and by far the majority of these offenders were reported for theft. This offense constituted 81 percent of the offenses of poor delinquents, but only 63 percent for delinquents who were in a more comfortable economic position. He further contrasts this proportion of 16 percent with only 8 percent of the population of London living below the poverty line; the "moderately poor" groups include 37 percent of the delinquents, but only 22 percent of the general population. The Gluecks (*32*) found only 23.7 percent of 925 families of delinquents living in comfortable circumstances, with 8.1 percent completely dependent. In their more recent study they (*3*) report a different distribution as shown in Table *33*, where similar data from Merrill (*5*) are given; in both cases with a comparison with control groups. Kvaraceus (*39*) found that 30.7 percent of his delinquents came from dependent families, i.e., required support from public or private agencies. Families in the marginal economic group furnished 42.2 percent, and those from the comfortable group 27.1 percent, of the delinquents. Beane (*13*) found that 58.3 percent of 300 girls come from poor homes and another 35 percent come from homes rated as in "sufficient" circumstances, with only 7.6 percent from "moderate" and "very good" financial circumstances.

Healy (*33*), however, reports only four out of 823 cases in which poverty is a major cause of delinquency, and 59 cases with this as a minor cause. These apparently contradictory data of Healy are not really in opposition to other figures reported, for his data represent only those cases in which he felt that poverty itself was a major or minor cause. Except possibly in the case of stealing, it is probable that the concomitants of poverty—poor neighborhood, overcrowding at home, parental worry, and inharmonious homes—are of greater significance. A study by Wattenberg and Balistrieri (*69*) is in interesting contrast to these findings.

TABLE 33. Economic Status of Families of Delinquents

	Percentage Distributions			
	Glueck and Glueck (*3*) Boston		Merrill (*5*) Los Angeles	
Economic Status	Delinquents	Controls	Delinquents	Controls
Comfortable	5.0	12.0	11.5	31.5
Marginal	66.4	76.0	65.8	51.2
Dependent	28.6	12.0	22.7	17.3
Number of cases	500	500	286	295

Boys in Detroit convicted of auto theft were similar to juvenile delinquents in general in most characteristics, but they came from more economically favored homes in good neighborhoods.

While the Gluecks (*32*) found only 8 percent of the cases coming from economically dependent families, they found that the homes of 62.2 percent were "unwholesome" in the sense of overcrowding and poor hygienic conditions. In the later study the same authors (*3*) show that 91 percent of the homes of delinquents had two or more persons per bedroom while among the controls this ratio was found in only 85 percent, which was a significant difference. Burt (*19*) found overcrowding about 1⅓ times as frequent among the homes of delinquents as among homes in general from the same social level. Kvaraceus (*39*) reports that in Passaic, while 95 percent of all households are within a "decency limit" of 1.5 or less persons per room, only 51 percent of the delinquents' homes could be so described. The remaining 49 percent of their homes had over 1.5 persons per room, and 3 percent had over 3 persons per room.

Moral standards. That the moral standards of the home may have a relationship to juvenile delinquency seems certain. Stallings (*7*) recites several instances in which the child's stealing was accepted, in fact encouraged, by parents. Statistics of juvenile groups, while not in close agreement, do tend to suggest that the homes of delinquents have socially doubtful standards. Thus the Gluecks (*32*) found that 86.7 percent of the delinquents studied by them had relatives with a delinquent or criminal record, and most of these were members of the immediate family. Healy's (*33*) figures are much lower than these. He attributes the major cause of the delinquencies to a vicious family in only 62 of 823 cases and lists this as a minor cause in 95 more cases; i.e., in only about 20 percent of his cases did he regard immoral or criminal home conditions as causal. Burt (*19*) found only two cases where there was direct criminal encouragement from the home, but his data offer a vivid contrast when they show vicious home circumstances in 66 percent of his delinquents and in only 10 percent of his nondelinquents.

TABLE 34. Conduct Standards in Home of Delinquents and Nondelinquents
(Glueck and Glueck [*3*])

	Percentage Occurrences	
	Delinquents	Nondelinquents
Mother		
Drunkenness	23.0	7.0
Criminality	44.8	15.0
Father		
Drunkenness	62.8	39.0
Criminality	66.2	32.0
Siblings		
Drunkenness	21.4	6.4
Criminality	65.2	25.8
Home conduct standard		
Good	5.2	37.8
Fair	4.4	8.2
Poor	90.4	54.0

In their detailed study comparing many factors found in a group of 500 delinquents and a similar-sized matched group of nondelinquents Glueck and Glueck (*3*) found significant differences in a variety of home circumstances. In Table 34 certain data on conduct standards of the home are summarized. The contrast between the groups is so marked that it is difficult to believe that the conduct in the home is without any significance in the boy's delinquency.

Broken homes. Table 35 summarizes a number of studies showing the incidence of broken homes among delinquents, and also the determined or estimated incidence of broken homes in the general population. There is rather close agreement among these studies that about 50 percent of delinquents come from broken homes, the average of these percentages being 47.7. There is a similar agreement that the incidence of broken homes in the general population is about 25 percent. Thus we find that homes are broken by death, divorce, or separation about twice as frequently among delinquents as in the general population.

TABLE 35. Broken Homes and Juvenile Delinquency

		Delinquents			
Author	No.	Death	Separation	Total	Controls
Breckenridge and Abbott (*17*)	584	34.0	7.6	43.3	
Shideler (*60*)	7,598	36.4	10.6	50.7	25.0
Burt (*19*)	200	25.0	15.7	57.9	25.7
Healy and Bronner (*35*)	4,000			49.0	
Slawson (*61*)	1,649	35.6	9.6	45.2	19.3
N.Y. Crime Commission (*48*)	201	30.0	15.0	45.0	
Crosby (*23*)	314			45.5	26.0
Burke (*18*)	766			37.5	22.0
Beane (*13*)	300	42.3	25.3	69.0	
Shaw and McKay (*57*)	1,675			42.5	36.1
Armstrong (*11*)	649	39.0	13.0	52.0	
	18,976	23.5	14.4	37.9	
Glueck and Glueck (*32*)	966	26.7	21.3	48.0	
Fenton (*30*)	400			59.0	25.0
U.S. Children's Bureau (*65*)	42,037 ♂	21.0	10.0	31.0	
	6,737 ♀	30.0	17.0	47.0	
Glueck and Glueck (*3*)	500			60.4	34.2

More detailed analysis of the figures discloses what may be pertinent conditions. In the first place, as shown in Table 35, homes of delinquents are broken by death about twice as frequently as by separation. How this proportion compares with that in the general population we do not know. However, some suggestion is given by Burt's study, and by the second study by the Gluecks (*3*). Among Burt's delinquent group homes were broken by death in about 30 percent of the cases and by separation in about 16 percent. In comparing the nature of the first breaks in family life experienced by their 302 delinquents and 171 nondelinquents who had broken homes the Gluecks (*3*) give the following frequencies for the individual reasons:

	Delinquents	Nondelinquents
Death of parent	20.6	30.9
Separation or divorce	32.1	34.6
Desertion by parent	32.4	18.7
Prolonged absence of parent	14.9	15.8

Here the outstanding difference is the rejection of the child indicated by deserting him. Also disruption of the home by death is significantly more frequent among nondelinquents.

Evidence on the relative effect of the loss of father or mother is conflicting. The U.S. Children's Bureau data (*65*) show that among 7 percent of the delinquent boys the mothers only are dead, in 12 percent the fathers only are dead, and in 2 percent both parents are dead. Among the girls, 12 percent of the mothers and 15 percent of the fathers are dead; 3 percent have lost both parents. Kvaraceus (*39*) presents almost identical figures, with 3 percent of the boys having the mother dead, 13.5 percent the father, and 2 percent both; among his girls 7 percent had the mother dead, 11 percent the father, and 2 percent both. These figures suggest that when the child is living with the mother there is greater tendency to delinquency. On the other hand, Burt (*19*) reports that 16.2 percent of his delinquents were living with the father and only 3.5 percent with the mother. Further information concerning this point is desirable.

TABLE 36. Percentage of Children in Age Groups in Which Broken Families First Occurred

Ages	Gluecks (*32*) 1934 Delinquent	Gluecks (*3*) 1950 Delinquent	Gluecks (*3*) 1950 Nondelinquent
Before 5	40.3	56.3	46.7
5–9	35.0	28.1	31.0
10–14	22.4	14.6	20.5
15 and over	2.3	1.0	1.8

The Gluecks (*3, 32*) have distributed the cases in both studies according to the age at which the home was broken. The results are given in Table 36. While the family break apparently occurs more frequently at younger ages this is also true for the control group. Armstrong (*11*) found 56.9 percent of 600 runaways to have had their homes broken by the age of six years. It is not clear what, if any, effect the breaking of the home at younger ages has on the development of delinquent behavior.

Family relationships. Shaw and McKay (*57*) say, "Our case histories suggest that the subtle emotional relationships between members of the family are often significantly involved in the boy's delinquent behavior." Statistics concerning such factors were not available for their cases, nor are they usually available. The Gluecks (*32*) report information concerning 813 families of delinquents. Among these, 21.7 percent were found broken by separation, desertion, or divorce. Of the remaining 636 families, about four-fifths of the parents were living together congenially; the other fifth exhibited "gross incompatibility but without open breach." In the second Glueck study (*3*) the conjugal relations of the parents of delinquents were about evenly divided between good with 37 percent, fair with 32, and poor with 31; the nondelinquent controls however had good relations in 65 percent, with 20 percent fair, and only 15 percent poor.

Relationships between parents and the delinquent child are also of importance. Again the Gluecks (*32*) have data which show that there was an unwholesome relation between father and son in 11 percent, and between mother and son in 5 percent, of the cases. This unwholesomeness means quarreling, lack of affection, and hostility. There was mutual indifference between father and son in 21 percent, and between mother and son in 13.2 percent, of the cases. In their comparative study the Gluecks (*3*) report parent-child attitudes as summarized in Table 37. The contrast in frequency of warm, accepting attitudes, even though overprotecting, on the part of both fathers and mothers indicates that the delinquents live more frequently in families which do not provide the kind of psychological atmosphere which is considered most desirable for healthy child development. An effect of this lack is reflected in the boys' attitudes toward parents. Here a significantly larger proportion of delinquents are indifferent or hostile to one or both parents.

TABLE 37. Parent-Child Attitudes of Delinquents and Nondelinquents (After Glueck and Glueck [*3*])

	Father		Mother	
	Delinquent	Nondelinquent	Delinquent	Nondelinquent
Parent's attitude				
Warm or overprotective	40.2	80.7	72.1	95.6
Indifferent	42.9	16.0	21.2	3.4
Hostile, rejection	16.9	3.3	6.7	1.0
Boy's attitude				
Attached	32.5	65.1	64.9	89.8
Indifferent	16.5	5.6	4.6	0.2
Hostile	11.8	2.8	2.2	0.6
Noncommittal	39.2	26.5	28.3	9.4

Similar findings are evident in Fenton's group (*30*), in which there were conflicts with fathers in 10 percent and with mothers in only 2.8 percent of the cases. The boy's attitude toward his home as gleaned from his own comments is shown in Table 38. Merrill (*5*) in less detail reports that of her delinquents 23 percent disliked being or even preferred not to be at home in contrast to only 7 percent of the controls. While the same number of boys in both groups were fond of their home, 17 percent, only 36 percent of delinquents enjoyed the home, while 64 percent of the nondelinquents did so.

TABLE 38. Delinquent Boys' Attitude Toward Home
(From Fenton [*30*])

Comments	Number	Percent
Satisfactory home	191	49.1
Dissatisfaction	198	50.9
Conflict with father	39	10.0
Conflict with mother	11	2.8
Conflict with stepfather	17	4.4
Conflict with stepmother	12	3.1
Conflict with, or dislike for, sibling	51	13.2
Lack of affection for family	23	5.9
Feels unwanted or out of place	20	5.1
Parents favor sibling	19	4.9
Doesn't want to return home	6	1.5

In Kvaraceus' (*39*) study, conflict in the home appeared more significant among the girls. Of the 761 children studied, 29 percent were involved in home conflicts; among the girls this percentage was 50, whereas for the boys it was only 22. The nature of the intrafamily conflict is indicated in Table 39. Of a total of 615 conflict situations noted in the records of 223 delinquents, 44 involved family members other than

TABLE 39. Nature of Parent-Child Conflicts Among Delinquents
(From Kvaraceus [*39*])

Attitude	Father Percent	Mother Percent
Neglect	30.2	26.0
Dislike	11.5	18.3
Inconsistency	12.4	16.7
Severe punishment	16.5	8.6
Nagging	10.2	13.2
Overprotective	7.6	10.1
Overdominant	5.4	2.7
Overcritical	3.2	4.3
Sex abuse	2.9	0.0
Number of conflicts	314	257

parents. The percentage distribution of various parent-child attitudes among the remaining 571 conflicts is also given in this table.

When the aspect of the parent-child relationship expressed in discipline is considered, the findings appear to be very significant. Burt (*19*) reports defective discipline in 60.9 percent of his delinquents and in only 11.5 percent of his nondelinquent group. This figure for the delinquent group is surprisingly corroborated by the Gluecks (*32*), who found that about 70 percent of both fathers and mothers used unsound discipline, including too great laxity or too extreme rigidity. With 4.1 percent of the fathers and only 2.5 percent of the mothers could disciplinary measures used be considered good. In more detail the Gluecks (*3*) contrast the kind of discipline used by parents of their delinquents and control groups. Here only 4 percent of the fathers of delinquents uses firm but kindly discipline in contrast to 66 percent of the control group's fathers. Mothers' discipline is the same with 6 and 56 percent using the same type of discipline in the two groups.

The Community and Social Conditions

Considerable study has been devoted, especially by sociologists, to social factors which may characterize juvenile delinquents as a group. As there is no doubt of the influence of the environment on the development of behavior, it is important that this area be explored to discover conditions which may be related to delinquent behavior. However, it must be remembered that social conditions form only part of the total matrix of factors which may influence an individual child. In preceding sections two of the most important sources of social influence—the home and the school—have been discussed. Other social institutions such as the church, organized recreation, mass media of communication, and the neighborhood, as well as the general conditions of society have been looked into. To complete our account of the characteristics of delinquency findings in relation to these areas will be summarized.

General conditions of society. There is some evidence that general economic conditions and wars have a relationship to the volume of delinquency. Lundin (*43*), Carr (*2*), and Bogen (*14*), reporting statistics from Allegheny County, Pa., Detroit, and Los Angeles County, respectively, all have shown a surprisingly close parallel between the course of business conditions and the incidence of juvenile delinquency. The first of these writers found in data for 1922 to 1934 that the depression years of the early 1930's saw not only a drop in business but also in the number of delinquents. The same was true for Los Angeles as reported by Bogen, who contrasted the index of business conditions and delinquency of boys and girls from 1925 to 1941. With 1930 set at 100 the business index in 1925 was 87 and the delinquency index for both boys and girls was 75; by 1929 business was at 109, with boys at 105 and girls 103. In 1933 the business index was lowest at 65; the same year the girls' index was 72, while the boys' was lowest the preceding year at 84. By 1940 with an increase of the business index to 122 the delinquency indexes had gone up to 108 for boys and 89 for girls who had been at 99 in 1938. These numbers estimated from the curve published by Bogen indicate the trends, but do not make the parallel as evident as it is on the original chart. Finally, Carr found that the delinquency incidence in Detroit from 1922 to 1935 moved up and down with the volume of industrial employment.

During the World War II period there were changes in the delinquency incidence, which have been summarized by Neumeyer (*46*). In 1943 the National Probation Association reported that there had been 38.1 percent more cases reported to it from 117 jurisdictions than had been reported in 1941. Data of the U.S. Children's Bureau showed a decrease of cases reported to it in 1944, with an increase again in 1945 and a decrease in the next year. While these limited figures cannot be taken as meaning too much they indicate that the unsettled condition of wartime—an impermanent prosperity, considerable mobility of workers and families, large numbers of young military personnel, and so on—appear to facilitate if not instigate delinquent behavior.

Church. Among the institutions of our society which, next to the family, have the most direct relation to moral standards is the church. Unfortunately, under even the most favorable conditions the church has a relatively tenuous hold on the life of children. Nevertheless the data of Table 40 suggest that delinquents have limited contact with church. While slightly over half of Kvaraceus' (*39*) delinquents reported regular attendance, a quarter of them never attended. This is a larger percentage in the "none" category than in the other two studies but neither of them had so high a proportion with regular attendance. Wattenberg (*68*) found that of his total group the 672 who had further police contact during the year had an appreciable lower "regular" attendance and a slightly higher "never" attended. Further the Gluecks' (*3*) controls had regular attendance at church almost 1¾ times as great as the delinquent group; all the differences between these two groups are significant.

Supervised recreation. As we shall see, delinquent behavior is characteristic of crowded, deteriorating slum areas. Here the opportunities for play and recreation activities are limited unless special provisions are made. Playgrounds, settlement house, and clubs have been introduced in many large cities to provide supervised recreation for children and adolescents from crowded areas. There is some evidence that these provisions may have a wholesome effect. For example, the Recreation Commission of Chicago (*21*) checked children in four delinquency areas and in one control area concerning participation in supervised recreation. In the control area 95.5 percent of boys participated in recreational activities, while in the worst delinquency area only 63.2 percent participated. In their Boston study the Gluecks (*3*) found that 24.8 percent of the delinquents attended clubs sporadically, while only 9.6 percent of the control group showed such lack of interest. On the other hand 72.7 percent of the controls attended twice a week or more in contrast to only 59.5 percent of the delinquents. Almost twice as many nondelinquents attended clubs on their own desire or volition as did delinquents—13.5 percent as against 7.9 percent. Further, 21 percent of the delinquents disliked clubs, in contrast to only 12 percent of the controls. Limited as these data are, they suggest a good influence of supervised recreational opportunities.

TABLE 40. Percentage Distribution of Church Attendance of Juvenile Delinquents

		Wattenberg (*68*)[a]			Glueck and Glueck (*3*)	
Attendance	Kvaraceus (*39*)	Total	Repeaters	Non-repeaters	Delinquent	Controls
Regular	54.21	43.56	37.8	46.2	39.3	67.1
Occasional or irregular	20.37	41.40	46.6	39.0	54.2	28.7
None	25.42	14.15	14.9	13.8	6.5	4.2
Number of cases	594	2137	672	1465	500	500

[a] Totals do not equal 100; the balance was unknown.

Neighborhood. If not the first, certainly the most comprehensive ecological study of delinquency was made by Shaw (*56*) between 1921 and 1929. This research was a sociogeographic study of approximately 60,000 juvenile and adult offenders in Chicago. In subsequent studies, Shaw and McKay (*57*, *58*) present much of this material, with confirming evidence from other American cities. The results of these studies may be conveniently presented in summary.

1. Juvenile delinquents are not uniformly distributed throughout the cities but tend to be concentrated in areas adjacent to the business and heavy industrial areas.

2. There are wide variations in delinquency rate in different areas, the rate tending to vary inversely with the distance from the center of the city. Burt found an essentially similar condition in London.

3. The area with high delinquency rates have high rates over a long period of time.

4. Delinquency areas are characterized by physical deterioration, decreasing population, high dependency rate, high percentage of Negro and foreign-born, and high rates of adult crime. Burt gives an essentially similar finding, with a correlation between delinquency rate and overcrowding of 0.77, with the poverty rate of 0.67, and with poor relief of 0.48 in the 30 Boroughs of London.

5. The greatest concentrations of delinquents occur in areas of marked social disorganization, and in these areas delinquency is the traditional behavior.

6. While the nationality and racial composition of the high delinquency areas completely changed between 1900 and 1920, the relative rates of delinquency remained practically the same. As the older immigrant groups moved to new geographical locations their delinquency rates showed a decrease.

Lander (*41*) in a more recent study of delinquency rates and other variables in census tracts in Baltimore reports findings with a considerable agreement with the above, but from his more sophisticated statistical analysis of the data raises some questions of detail. This study was based upon a correlational analysis of delinquency rates for 1939 to 1942, and several other social indexes of the 157 census tracts in the city of Baltimore. Important for our purpose is the conclusion that, while there were high and significant first-order correlations between delinquency rates and several other variables, the zonal hypothesis of Shaw was considered too oversimplified. Instead of the specific socioeconomic conditions of areas being of importance, the author finds that the delinquency rate is fundamentally related to the anomie of the area. Anomie is defined as " 'normlessness,' the breakdown or weakening of the regulatory structure of society." This study agrees with earlier ecological investigations in the empirical findings, but the author differs in the interpretation to be made. In considering the individual delinquent it may be important to be aware of the region from which he comes, but this alone will not be of crucial clinical significance.

Summary

The preceding pages of this section have presented a résumé of typical and illustrative studies of juvenile delinquents in which personal, family, and social characteristics were described. In no case were the findings unequivocal in differentiating delinquents from nondelinquents. In no case did the findings support an acceptance of the characteristics as an exclusive or even highly significant factor in causing delinquency. Nevertheless, these data do provide important information about delinquents which can be useful to those who deal with them.

The more important characteristics of delinquents may be summarized as follows: (1) Apprehended delinquents in courts or in institutions exhibit low ability as represented by I.Q.'s between 80 and 90. (2) Delinquents appear to be more emotionally unstable and temperamental, with the delinquent behavior being symptomatic of personality disturbance. (3) Possibly as a resultant of the first two items the attitudes toward school and school achievement of delinquents are inferior. (4) Problem behavior, including delinquency, starts at an early age. (5) The delinquent is not socially isolated; he has companions and is socially adjusted with a peer group which is, however, frequently not socially acceptable in terms of the general requirements of society. (6) Delinquents appear more frequently from homes of low socioeconomic status and with unacceptable moral standards; further the intrafamily relationships are psychologically poor. (7) The delinquency rates of areas of social disorganization, physical deterioration, and high anomie are greater than in areas not so characterized.

The foregoing are characteristics of delinquents as a group. They may or may not be significant for an individual delinquent. Psychological problems in understanding and helping delinquents must be found in the circumstances of a particular child, not in the group.

CAUSES

Although the description of the characteristics of delinquents, their families, and the neighborhoods from which they come may afford suggestive clues, it does not answer the question of etiology. The average intelligence of delinquents is low, but there are some who must be classed as superior. A large proportion come from broken homes, but many live in homes that would be rated high by any standards. The delinquency rate is high in poorer, disintegrating areas of cities, but there are delinquents in even the best sections of cities, and certainly rural and semirural areas are not free from them. Many, perhaps most, juvenile delinquents exhibit a disproportionate number of other conduct and personality problems, although not all of them do; and many children exhibit behavior problems who could never be called delinquents. The reasons for exactly the same delinquent behavior in two children will probably be quite different. One child steals because he is hungry, another because he has been taught to do so, another because a companion suggests it or dares him to, still another because the thing stolen or the very act of stealing gives him a feeling of strength that is otherwise lacking. In dealing with the delinquent we must think of the child not as a violator of the law, but as one whose behavior is socially unacceptable. There is a reason for that behavior, and the reason can be discovered only by careful study of the individual child.

Bovet (*15*) in an excellent summary of discussions on the etiology of delinquency which considers social, organic, and psychological factors, reaches the conclusion that a psychological common denominator can be found in the feeling of insecurity. Regardless of the source of such feelings they result in anxiety, which in its turn commonly is shown in aggressive behavior; in proper circumstances such behavior is delinquent. The circumstances of delinquent behavior are, to paraphrase Sutherland (*63*), the availability in the child's environment of delinquent behavior patterns, and isolation from antidelinquent patterns. While perhaps oversimplified, this statement provides a working rationale in studying the delinquent. On the one hand, one inquires into the personal and experiential factors that are basic to any behavior, and on the other into the environmental influences which have determined that the specific behavior shall be delinquent.

It is well-nigh impossible to discuss causative factors in a general way. A much better appreciation of them can be gained from a consideration of cases. In the following pages there are a number of selected cases which, while not recent, illustrate the kinds of influences and the relationships of factors which have been found in children brought before courts on charges of delinquent behavior.

The first group of three cases (Nos. 18, 19, 20) illustrate delinquent behavior as symptomatic of personality disturbances in the children. Sally is of low mentality, but she recognizes that she compares unfavorably with her sisters. Hers is Cinderella's lot. She tries to escape by leaving home, and later as a kitchen drudge she steals in a pathetic attempt to make life fuller. Harry tries to overcome his feeling of insecurity—arising from the conflict between the attitudes of his father and mother—by spending, and he must steal to get the money to spend. Billy's delinquencies are only an incidental part of his emotional objection to what he considers his father's immorality. Thus, even these three cases show that delinquency may depend upon subtle factors in the child which are entirely unsuspected.

Case No. 18 (Tiebout, 64). Take the case of seventeen-year-old Sally, who came to the clinic with a record of stealing. In early childhood, following a long illness during which she received an undue share of her mother's care and attention, a change in disposition had been noted. She became fretful, petulant, rather demanding, feeling that she did not get the consideration due her, her actions tending to estrange her from the family. Aided by a kindly school system, she did manage to graduate from an elementary school at sixteen, but for many years she had recognized that her sisters, all of whom were younger, were of distinctly good intellectual attainments and quite able to surpass her record. She came to feel herself the "ugly duckling" and developed a vivid fantasy life, which, a year before she was referred to the clinic, led to her running away to find the place of her dreams.

She was apprehended and taken to the Detention Home instead. There her mental age was found to be about ten years, giving her an I.Q. in the sixties. She was paroled and, following the suggestion that she do unskilled labor, housework was found for her, despite her objection that ever since she could remember she had been helping her mother do the housework at home. However, she was informed that that was what she could best do. For a year and a half she had been shifting around, hopeless, dissatisfied, and with little or no encouragement from home or anywhere else. Finally she began stealing systematically from her employer, spending part of the money on herself, but adding two dollars to her weekly wage which she turned over to her mother with the pathetic statement that her work had been so satisfactory that she had been granted this raise.

Surely this girl's feelings of inferiority and her unsuccessful efforts to compensate resulted not so much from her actual mental level as from her reaction to the situation in the home. Vocational guidance for Sally must take into consideration, in addition to her limited intelligence, her feelings toward her limitations. Recommending housework in this case violated the tenet that a job must in some way bring compensations for previous inferiorities. The patient had been made more or less of a kitchen slave at home, had developed a profound distaste for the work, and resented the implication that she was fitted for nothing else. It is not a surprising outcome that she became restless and unhappy and indulged in stealing to gain some of the satisfactions of having money with which to splurge, as well as to make a good showing to her mother.

Case No. 19 (Allen, *8*). Harry was a boy of fourteen who embezzled a considerable sum of money from his employer, and was using the money for making a big splurge at a local amusement park. Previous to this serious offense, he had stolen small amounts at home. The main sources of the difficulty in this case were:

1. A very oversolicitous mother who insisted upon treating this boy as an infant. Before company he was always introduced as "my baby." She supervised all the details of his clothing and dressing, she gave him spending money only as he needed it, and in many other ways prevented him from growing up.

2. The father, a large, masculine type, was very stern and rather repressive in his handling of the boy, and somewhat inclined to scorn his lack of virility and his rather infantile type of personality. This discrepancy in the attitudes of his parents was having a very destructive effect upon the self-respect of the boy.

His decision to leave school at fourteen to go to work was a significant gesture of the boy to test himself. He felt very insecure about himself, particularly in relation to the somewhat older adolescents whom he met in his work and at school. The desire to establish himself was a very keen one, but his background had given him very little confidence in his ability to do this in a normal way. The stern and awe-inspiring discipline of the father, combined with the coddling of the mother, did not make a very firm foundation upon which the boy could stand when placed on his own. The quickest way to gain his goal and to compensate for his obvious immaturity was to get money. He proceeded to do this and to make the impression that he felt was necessary if he was to become a "regular fellow." It was also an opportunity to prove to himself that he could do something unsupervised by his mother.

Case No. 20 (Healy, *34*). A boy of almost twelve years, Billy S., has been stealing for three years, very repeatedly and from various sources, a couple of times rather considerable amounts. Recently he stayed away from home on several occasions, once as long as five days. His father joined in the court complaint against him. On examination the boy proved to be normal physically and mentally, although somewhat retarded in school work. From school and from home we received reports that he was unusually reserved.

Now, viewing the facts as they were obtained from the several sources, one might offhand have explained this delinquency as "bad inheritance," if one's pet theory was centered on heredity; for even a little investigation showed a record of considerable family misbehavior. But then one might also have picked out poor recreational advantages or immoral neighborhood influences. As a result of the ordinary investigation, the home, however, was considered good; to be sure, the mother was dead, but a housekeeper, evidently competent, kept the house neat and clean; the father earned well and was good to the children.

Following the report of the boy's extreme reserve, even at home where his father was kind to him, we felt the necessity of an approach which would dig up the foundation of this mental and social reaction, not normal at all in such a degree. A chance for the boy to talk quietly and an inquiry conducted with patience first brought out the fact that there had been a companion, Dick, who had been the earliest influence in development of the idea of stealing. But the crux of the affair appeared with the revelation of unsuspected facts. Suddenly, as if to lay bare the heart of his trouble, he blurted out, "I go away because I don't like to stay there; it's no good; he's not married to her. Dick told me about these things."

What this boy revealed was verified curiously enough in this case with the help of the father himself, who did not conceive that his own liaison could have anything to do with his son's types of misconduct.

If the situation had not come out, unfortunate ideation, repression, and delinquent reactions to the inner mental life undoubtedly would have gone on to most undesirable habit formation. It was clear that reconstructive measures were needed in a complex situation that was not all brought to light during the inquiry in court.

The following three cases illustrate the direct influence toward delinquent behavior of parents, neighborhood adults, and gang members, respectively. It is hard to see in any of these cases subtle personality conditions, or compensatory behavior, or similar factors as of importance in the behavior. Stallings (7), a juvenile police officer, mentions experience with a mother who encouraged her son to steal, a high school student who managed a gang of younger thieves, and parents who objected to police interference with their childrens' delinquent activities.

Case No. 21 (Shaw, *56*). My stepmother sent me out with William (my stepbrother) to pick rags and bottles in the alleys. She said that would pay for my board and make me more useful than fretting and sulking at home. I did not mind that in the least. In fact, I enjoyed it, because I was at least out of the old lady's reach. I began to have a great time exploring the whole neighborhood—romping and playing in the alleys and "prairies," gathering rags, bones, and iron, and selling them to the rag peddlers. This romping and roaming became fascinating and appealed to my curiosity, because it was freedom and adventure. We played "Indian" and other games in the alleys, running through the old sheds and vacant houses. Then we gathered cigarette "butts" along the street and took them to the shed, where we smoked and planned adventure. I was little and young, but I fell in with the older boys. Outside in the neighborhood, life was full of pleasure and excitement, but at home it was dull and drab and full of nagging, quarreling, and beating, and stuffy and crowded besides. . . .

One day my stepmother told William to take me to the railroad yard to break into box cars. William always led the way and made plans. He would open the cars and I would crawl in and hand out the merchandise. In the cars were the foodstuffs, exactly the things that my mother wanted. We filled our cart, which we had made for this purpose, and proceeded toward home. After we arrived home with our ill-gotten goods, my stepmother would meet us and pat me on the back and say that I was a good boy and that I would be rewarded. Rewarded, bah! Rewarded with kicks and cuffs.

After a year of breaking into box cars and stealing from stores my stepmother realized that she could send me to the market to steal vegetables for her. My stealing had proved to be very profitable to her, so why not make it even more profitable? I knew it was for my own good to do what she wanted me to do. I was so afraid of her that I couldn't do anything but obey. Anyway, I didn't mind stealing, because William always went with me, and that made me feel proud of myself, and it gave me a chance to get away from home.

Every Saturday morning we would get up about three o'clock and prepare for the venture. William, Tony, and his two sisters, and I would always go. We would board a street car, and the people on the car would always stare at us and wonder where such little kids were going so early in the morning. I liked to attract attention of people and have them look down upon me with curiosity. The idea of my riding in a street car at that early hour appealed to my adventurous spirit and keyed me up to stealing. In the street car William would give me orders on what to steal and how to go about it. I listened to him with interest and always carried out his orders. He had me in the palm of his hand, so to speak. He got the satisfaction of ordering me and I got the thrill of doing the stealing. He instructed me how to evade peddlers and merchants if they gazed at me while I was stealing. After arriving at the market, William would lay out the plan of action and stand guard while I did the stealing. He knew what the stepmother wanted, and he always filled her orders to overflowing. All in all, I was a rather conceited little boy who thought himself superior to the other boys of his age, and I didn't miss impressing that little thing upon their minds. I was so little that the peddlers were not suspicious of me, and it didn't take long to fill our baskets and be ready for the journey home. All spring, summer, and fall did we go to the market, and never did I get caught and never did we go home with empty baskets.

Stealing in the neighborhood was a common practice among the children and approved by the parents. Whenever the boys got together they talked about robbing and made more plans for stealing. I hardly knew any boys who did not go robbing. The little fellows went in for petty stealing, breaking into freight cars, and stealing junk. The older boys did big jobs like stick-up, burglary, and stealing autos. The little fellows admired the "big shots" and longed for the day when they could get into the big racket. Fellows who had "done time" were big shots and looked up to and gave the little fellows tips on how to get by and pull off big jobs.

Case No. 22 (Shaw and McKay, 57). In the neighborhood in which I lived there were mostly Italians and Croatians. There were always street fights, drunkards, and there were all kinds of petty thieves. The buildings and homes were dirty and shabby looking and the streets were likewise. Then there were some tenement houses and rooming houses and there were a few factories.

I was 11 or 12 when I associated with some young roughnecks and petty thieves and I got my ideas from them. We used to steal milk off people's porches and break open the bread boxes in front of the stores early in the morning after the breadman left and we would take the milk, bread, and cakes to our clubhouse in the middle of the block, and in the rear of the house facing the alley was a barn where a Negro fellow left his horse and wagon. In the attic of this barn was our clubhouse and to the left of the barn was a junk yard where we used to build fires and hang around late at night. To the right of the barn was a house, and next to the house was a garage. Across the alley was Mr. Smith's shanty where he kept his coal and did his business. Us kids, or in other words, our gang, used to help Mr. Smith make his deliveries. He would sell his coal by the bag at 35 cents a bag. Whenever another coal man was making his deliveries and left his wagon load of coal sit in the alley or street, a couple of us kids would steal the wagon load of coal and take it down to Smith's shanty and unload the wagon of coal. We would then drive the horse and wagon about a mile away and leave it along the street. Then we would catch a street car and come back to the shanty to get our money. Smith would give us a couple of dollars for the wagon load of coal and we would go down to Guy's restaurant and get something to eat and then we would go to the shows. There we would see and hear the pretty girls dance and sing.

Smith had a junk yard, too, and he bought junk and sold it. He had a big bunch of us kids that stole all kinds of junk for him in the neighborhood and in other neighborhoods. We would drive with Smith to some neighborhood and look around by an old house. We would go in the old house and Smith would drive away a few blocks and we would get all the old iron, bottles, and lead and pile it in the alley or some safe place and then Smith would come back to get it. Sometimes Smith sent us out to steal from junk yards and from junk wagons. He always paid us money or candy or cigarettes. I stayed with him for two years and then got into the auto racket.

Smith let us have our clubhouse in his barn as pay for stealing for him. Sometimes we would sleep in our clubhouse and sometimes in summer we would sleep in the other old buildings.

I have a mother and father. My father had no trade, so he worked as a common laborer whenever he could find work. He was a steady worker. My mother took care of the house, as we had six boarders at the time, so it kept her quite busy at home. I have two older brothers and three sisters. I would help at home by chopping wood and clean the snow off of the sidewalks in the winter and run errands for my mother. I did not realize at the time how serious these petty crimes were. I thought I was smart to do those things. I got in the habit of stealing and thought nothing of it. Somebody would dare me to throw a rock through the window of a department store or steal, and I would do it for the kick I got out of it.

Case No. 23 (Burke, *18*). Patrick McGinnis. Native white. Father born in Ireland, mother native white. Father in United States 25 years. Present age, 19; age at time of offense, 17. Boys' court hearing, July 2, 1924. Disorderly conduct. Continued under supervision of a private agency. Discharged September 14, 1924. Lives at home. Family: Father 46, mother 44. Mother worked away from home. Patrick is a neat, well-dressed, and nice-looking boy of medium height and weight. He is clean cut, extremely shy but seems to have a belligerent disposition.

Patrick's court record includes one charge of disorderly conduct a few days before the offense included in the study. Patrick said: "The first time I was just in a fight on the street. I belong to the ——— Ballroom gang and we all got in a fight with some other gangsters and the cops picked us up. They turned all the fellows loose they knew. The rest got stuck. I didn't get a fair break from that cop that night. The night copper at ——— station tried to get the cop to send us home but he wouldn't." According to the court record the officer stated in court that there had been no reason for the arrest and Patrick was discharged. The next time, Patrick said, "I got arrested and I deserved it. I was with some boys and we had all had a few drinks and we were raising the devil, but the court was square with me, as well as the cops. The judge gave me a chance when he could have sent me away. I appreciated the chance and it gave me a lesson." The court continued the case while it was investigated by a representative of a private agency.

Patrick's family live in a good west-side neighborhood with nice homes and a large park a block away, offering various forms of recreation. The father owns the apartment house in which the family occupies a 6-room apartment. In the home, which is furnished rather elaborately but in good taste, are a phonograph, radio, books, and magazines. Usually the family has only three members, but at the present time, owing to the mother's illness, her sister is there caring for her. The father is a contractor and evidently makes a good income. The mother had been working for many years in a position that brought her in contact with social problems. The attitude of the members of the family toward one another seems normal and natural. The parents are fond of the boy and seem to be very good to him. The mother has been anxious for him to obtain a good education and has been somewhat disappointed that he did not want to go to school longer and take up a clerical or professional line of work.

Patrick entered school at 5 and left at 17, when he graduated from high school. "I have had all the school I want," he said. "I would not have finished high school except that mother would have been hurt. I don't care for office work or any kind that takes a lot of schooling to do. What I like is something in the way of electricity or building. Mother thinks I ought to do something else, since I have a high-school education, but I know what I like best."

In talking of his conduct difficulties before his boys' court experience Patrick gives some rather illuminating comments on life as he found it for a boy in his district: "I have had no trouble besides what all boys do. I had street fights but I never lay out of school or stole or done anything like that. If a boy keeps his self-respect and belongs to a gang or lives in a neighborhood where lots of boys are he has to fight. I don't do it because I like to but because I have to." Since his boys' court experience Patrick says that he has had no troubles except a few fights which were forced upon him. "I am learning to stay out of fights, though. I find if I don't have much to say to a tough, I don't get into so much to fight about." As to his companions Patrick said: "I run with some pretty tough eggs in my gang and on the streets, but I don't see them often now since I got out of high school. Now I spend most of my time with other friends. We go to parties at each other's homes. Sometimes we go to dances and shows down town. I am better satisfied to go with these friends for they are not such roughnecks. I never have fights with them. They are civil and nice and don't have so much fight in their codes of honor." The father also says that he has had no trouble with Patrick except his fighting. However, the father thinks that it is natural in a boy and especially in his son. "I suppose he come by it naturally; I was the same way when I was coming up."

Apparently Patrick's difficulties have arisen from his connection with a rather rough group of boys. Having a harmonious home and no particular problems, he will probably have little more difficulty. Since his court appearance he has not been arrested, and according to him and his family, has engaged in fewer fights. For a boy of Patrick's type the supervision accorded by the court was probably very suitable treatment.

These few cases have been selected because they introduce some of the more frequent factors that are basic to delinquency. In even these cases, however, it is evident that no one thing is ever the cause of delinquent behavior. The official charge against the delinquent is of little value in psychological diagnosis. We must have as exhaustive a history of the child as it is possible to get; and intelligent interpretation of the information included in such a history must account for the delinquency. There is always a reason; and until that reason, or those reasons, are discovered, it is impossible to deal adequately with the child.

TREATMENT

From a strictly psychological point of view the treatment of the juvenile delinquent differs in no essential respect from the treatment of any child who exhibits behavior difficulties. Inasmuch as the delinquent's behavior problem is of such a nature that it transgresses legal restrictions, the psychologist is not entirely free in dealing with the child. He usually sees the child only after he has been brought into court or been committed to an institution or placed on probation. Therefore, we must consider juvenile courts, probation, and institutions, as special factors in the treatment of the juvenile delinquent.

Juvenile Courts

Special courts for dealing with children's cases are of recent origin, although Platonov (*49*) reports that Catherine II instituted "Courts of Conscience" in Russia during 1775 to hear cases of juvenile delinquents, insane, and unintentional offenders, and to settle disputes by arbitration instead of by formal legal procedure. Modern juvenile courts were instituted in South Australia by ministerial order in 1890 and later legalized by an Act of 1895. Earlier than this several American states had provided for the separate hearing of children's cases. The first laws establishing juvenile courts were passed in 1899 in Illinois and Colorado; they established courts in Chicago and Denver. Since that time practically all states have made some arrangement for the special handling of juvenile cases.

In usual criminal procedure, the offender is accused of the commission of a specific crime. The jury and judge, following certain conventional legalistic formulas, decide whether the evidence supports the accusation. If it does, the individual is punished according to law. In contrast to this, the underlying theory of the juvenile court is that the child is ultimately a ward of the state, and when he has been brought before the court its task is to discover the conditions responsible for his appearance. In chancery proceedings of this sort the judge's action can be influenced by factors in the child's history which could not be admitted as evidence in a criminal proceeding. In addition to delinquencies of children younger than statutory limits, the juvenile courts usually have jurisdiction in cases of child dependency or neglect.

The details of procedure in different courts vary a good deal, but in general nature the procedure is essentially similar. Children may be arrested by the police, or complaints may be made to the court officials by parents, school authorities, or other interested persons. Between the complaint and the hearing a period of a day or two to a week or more intervenes. During this time the child may be kept at home, or in official custody in a special detention home or boarding home, or, unfortunately in some communities, in the jail. The hearing itself is usually preceded by an investigation of the child's history, which may consist of little more than a statement of superficial home conditions and the opinions of persons who know the child; on the other hand, it may include a detailed study of the physical and mental condition of the child, his developmental history, and his home and neighborhood. The history may be secured entirely by the probation officer, or it may be contributed to by such specialists as the physician, psychologist, psychiatrist, or social worker.

With all the available material before him, the judge conducts a hearing. Present are usually the child, his parents, the person making the complaint, and perhaps the probation officer or others who have contributed to the history of the case. Conspicuous by their absence are lawyers, court attendants, jury, and a public audience. The judge, alone or in consultation with expert advisers, makes a decision—not what the punishment shall be, but how the child shall be treated.

In general, three major courses are open to the judge: (1) He may merely release the child, with or without warning, to the custody of the parents. (2) He may place the child on probation for a definite or indefinite period. (3) He may commit the child to a juvenile reform or correctional school.

Complete release of the child to the custody of the parents is probably wise only under certain extremely suitable circumstances. If the offense is the child's first, if there are no reports of other types of behavior problem, and if the evidence supports the belief that the parents are able to deal with the child, full release is probably the best procedure. Regardless of how minor the act is upon which the present complaint is based, if the child has a previous history of delinquency or behavior problems he should not be given a full release. Such a history is itself evidence that the parents are not able to deal satisfactorily with him. Therefore, the state, through the court, must maintain contact with the child to the end that he shall not develop further unsatisfactory behavior tendencies.

Probation

The court's contact with the juvenile offender is usually maintained through a system of probation. The child may be left in his own home or placed in a foster home, but in either case his activities are more or less carefully supervised by a probation officer. With a sufficient number of adequately trained officers, the probation system has much to commend it. Unfortunately, in too many communities the probation officer is a purely political appointee, and often the place is given to an entirely unsuitable person. This political aspect, the lack of money available for salaries, the absence of community enlightenment, and too large case loads often make probation an unsatisfactory method of dealing with delinquents. When probation is satisfactory, if not ideal, the officer can do a great deal in helping the delinquent. He visits and tries to gain some insight into the home; he offers counsel to the child; he should know and make use of all facilities, such as medical or mental hygiene clinics, recreational programs, boys' and girls' clubs, and the like, that exist in his community; he is not a policeman wielding a big stick, but a friend to whom the delinquent should feel free to go in times of difficulty. Active therapy by probation officers is usually in the nature of social treatment such as advising changes in home, giving occupational and educational assistance, and the like. The probationer is required to report at regular intervals to the officer. Because of the very heavy case loads usually borne by most probation officers, the reporting of the delinquent is often a rather perfunctory, formal affair. If the case loads were small, properly trained officers could be of great value in carrying out psychological therapy.

Institutions

Separate institutions for juvenile delinquents were unknown before 1824. Before that date, children were tried, convicted, and committed to the jails and prisons just as adults were. In 1824 the New York House of Refuge was opened through the efforts of the Society of Friends in

New York City. Boston and Philadelphia established similar institutions in 1826, and the first State Reform School for Boys was started in 1847 at Westboro, Massachusetts. Massachusetts also had the first school for girls in 1854. Since this time, public and private institutions for delinquent boys and girls have been created in every state. From the beginning until very recently—and in the more backward schools even today—the basic idea of such institutions has been merely to separate children from adults in carrying out the provisions of the penal code.

Since the development of juvenile courts and the changing attitude toward juvenile offenders, the purposes and values of institutions for children have been viewed in a different light. The following quotation from Bowler and Bloodgood (*16*) is an excellent summary of the objectives of juvenile institutions as seen by progressive workers twenty years ago; it represents an ideal which unfortunately has not yet been approached.

> An institution for delinquent boys exists for the purpose of reëducating the individual child committed to its care by the court. Reëducation here means something much broader and deeper than any amount of improvement or increase in the academic instruction or vocational training which the individual child is to receive. It means reshaping his behavior patterns. It means giving thoughtful attention to his personality difficulties to the end that he may achieve healthy emotional development as well as growth in mental equipment or manual skill. It means giving the child an opportunity to meet and experience life under controlled conditions, in order that he may be more readily redirected and guided into behavior channels that will gratify him and be acceptable to others. It also implies making quite sure before he is released that he has acquired sufficient reëducation, or redirection, to enable him to make those personal and social adjustments that will be necessary if he is to lead a fuller, happier, more productive life and if he is to avoid these conflicts which had previously brought him, and would again bring him, into conflict with society and its laws. To imply that all these things can be done for all boys would be to sidestep reality flagrantly. Realistically the institutions' task is to discover each boy's assets and liabilities in relation to the social scheme, and then to go as far as possible in each case toward building up a personality capable of satisfactory self-direction.

It would take us too far afield to attempt a description of the work of modern institutions. Several reports which are readily available give excellent accounts of present practices. Kvaraceus (*4*), in describing the functions and operation of institutions, points out how great a lag exists between practice and recommended principles. For an earlier date Bowler and Bloodgood (*16*) have described the programs, especially from the point of view of their treatment value, of five state institutions for delinquent boys which illustrate current practices in a small selected group of institutions. Reeves (*51*) has published a somewhat more elaborate study and analysis of the practices of 57 training schools for delinquent girls.

Unofficial Treatment

Probation and institutionalization in themselves do not constitute treatment; they are merely means of keeping an official eye on the delinquent child. As the Gluecks point out, the judge has a primary duty to society in protecting it from further acts of this offender. In contrast, the professional specialist is concerned primarily with the child as an individual. There is no real reason why these two points of view should be in conflict. To treat and cure the child mean ultimate gain to society. If there is reason to believe that the child's behavior will be inimical to the social good, there is no reason why probationary or institutional supervision should not be maintained temporarily. But during such periods of supervision there should be attempts at active therapy. Institutionalization as punishment, or as an end in itself, probably defeats its own purpose. A similar statement can be made regarding probation when it is used merely as a means of watching the boy or girl while hoping he will reform, or waiting for his behavior to become so bad that he is sent to an institution.

Active measures aimed at the correction of the child's behavior may deal with the parents and family, with the community and its agencies, and with the child. Upon which of these three emphasis is to be placed can be determined only by careful evaluation of all the elements involved in the history of the case. Detailed schemes of treatment cannot be set forth because they would probably not be suitable for even one actual case. Furthermore, such schemes can be too easily considered as magic formulas which insure the improvement of behavior. We can, however, summarize in a general way certain procedures that have been shown to be of value. There is nothing new here—rather, we reiterate some things discussed in an earlier chapter.

The importance of the family can hardly be overestimated, and every effort should be made to improve the home conditions. In cases where the parents are vicious or criminal, necessary legal action should be taken against them, and the child removed from the undesirable influences. Attempts should be made to improve the material condition of the home. When there are intrafamily emotional tensions and conflicts, efforts should be directed toward reducing them.

If the child lives in an impoverished, degraded, vicious neighborhood, he should probably be removed. Among the agencies of the community, the school is of great importance. Better school adjustment through change in grade placement, modification of curriculum, and improvement of teachers' attitudes should be attempted. Commercial amusements, such as poolrooms, saloons, and movies, and unsupervised congregating places may have extremely bad effects upon the child and should be controlled to the greatest legal extent.

Before dealing with the child himself, it must be decided whether he is to be allowed to remain with his family and in his own neighborhood. Institutions or foster homes for delinquents should be used only as a means of taking the child from undesirable conditions so that direct therapeutic measures may be more effective.

How shall each child be dealt with? The answer to this question must be decided on the basis of etiological factors derived from his history. If this history shows that the child comes from an environment that definitely indicates inadequate or unsatisfactory training, that he is below average in intelligence, and that he is not adjusted academically, that the viciousness or criminality of the home or neighborhood has afforded excellent models for his behavior, then a program of rehabilitation is indicated. Probably the child should be removed from his environment, either to a foster home or to an institution. His school program must be adjusted to his ability, and perhaps greater emphasis placed upon prevocational or vocational courses. The retraining should also include efforts at building up habits of social responsibility.

For those children whose history indicates that emotional conflicts or personality disorders are basic to the delinquency, a more active psychotherapy is necessary. While such therapeutic measures must deal directly with the child, it is necessary to remove or correct environmental reasons for them. Therefore the family must be dealt with in an attempt to reduce conflicts and stresses. It may be necessary in some cases to remove the child from the home, at least temporarily.

The first step in psychotherapy for the child is to hear his own story.

Regardless of how much other history has been secured, or how insistent parents or others may be as to the child's guilt, or how clear the whole problem appears to be from the history, if any attempt is to be made to help the child he must be allowed to tell his own story in his own way. The person undertaking to deal with him with this type of therapy must take no sides, must show no bias. There must be no element of "good" or "bad" deeds. The therapist is not a judge, but a friend. This must be made clear to the child, for he usually has had much experience in being judged for his misbehavior or condemned and scolded. Any idea of punishment must be kept entirely out of the picture. With all ethical or moral questions out of the way, the therapy is the same as that discussed earlier for dealing with behavior problems in general.

The Function of the Psychological Clinic in Treatment

Since the establishment of Dr. Healy's Psychopathic Laboratory in connection with the Cook County Juvenile Court in 1909, a number of courts have created their own psychological departments or made use of psychological clinics available in the community. While the work of such clinics has a large diagnostic aspect, individual and group psychotherapy is an increasingly important function, as shown by Davidoff and Noetzel (*24*). While psychological attention to delinquents could be expected to be beneficial, actual reports on results are conflicting. For example Gersten (*31*) reports that group psychotherapy sessions over a twenty-week period with institutionalized delinquent boys resulted in emotional release and improved emotional security and social maturation. There is no evidence concerning changes in behavior. On the other hand, Powers and Witmer (*6*) say that in the Cambridge-Somerville Youth Study the special attention of counselors was no more effective than the usual forces of the community, although in individual cases boys may have been influenced away from delinquent careers.

In their early study the Gluecks (*32*) found that 88 percent of 923 delinquent boys were recidivists within a five-year period following the treatment recommended by the Judge Baker Foundation Clinic. Such a high percentage of nonadjustment taken at its face value would be a strong argument against the value of the clinic.

In investigating their cases in detail, they found that the clinic recommendations could not be carried out for reasons such as the following:

1. Legal restrictions made it impossible, e.g., in the case of recommendation for commitment to a school for the feeble-minded. This would not be the case in some states.

2. Parents could not or would not coöperate in carrying out recommendations. This of course would have to be met by a program that did not require the coöperation of the parents.

3. There was a lack of proper social agencies or community facilities, and established agencies refused or were unable to deal with problem children.

4. The delinquent refused to coöperate. He may have refused to attempt any change in behavior, or, in some cases, he may have escaped or run away before a therapeutic program could be carried out.

5. Authority to deal with the delinquent was diversified, as among probation officers, parole board, institution personnel, and so on; and this sometimes resulted in a lack of an integrated attack on the problem.

6. The limitation of skill and understanding of some probation officers, social workers, or teachers presented difficulties in carrying out some recommendations.

7. Trial-and-error, experimental, and idealistic recommendations frequently were neglected because of many practical difficulties in carrying them out. This item emphasizes the point that the clinic must make its recommendations with full realization of the possibilities of having them followed.

When one considers the several reasons for noncompliance with recommendations and also that in some cases the recommendations were presumably carried out, but not under close supervision of the clinic, it is evident that the high percentage of nonadjustment cannot be taken as adverse evidence. It does, however, definitely show, as the Gluecks themselves point out, that there must be closer coöperation among the court, the clinic, and various community agencies in dealing with delinquents. There is also the possibility that in many instances recommendations may be made which in general would be good but are not of great importance in a specific case.

The value of institutionalization of delinquents may also be questioned. For example, Healy and Bronner found that of 311 boys sent to juvenile correction schools, 70 percent failed to adjust after leaving the institution, while of 109 boys not committed, only 34 percent were failures. Fenton reports that of 180 boys who had been out of the institution for a period sufficiently long to give evidence as to their social adjustment, 110 had adjusted and 70 had not. The variation in these two sets of figures is probably to be accounted for by different programs of rehabilitation and by differences in the method of placement.

In comparing the adjusted and nonadjusted groups on the presence of some 200 various traits, Fenton found some differences of reliable significance between them. For example, among the adjusted boys there was a greater incidence of harmonious homes, fewer broken homes, and more constructive interests. The Gluecks found that sound discipline by either father or mother, normal school placement, nonschool misconduct, late age (15–17 years) at time of first arrest, and clinical study within a year after the onset of delinquency were the most important factors favoring satisfactory adjustment. These studies and certain others referred to in these monographs indicate that there are bases for predicting favorable outcome in the treatment of delinquency.

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Chapter 11

Whether a child is referred to a speech therapist, to a psychologist or to a remedial reading teacher is largely a matter of timing. It is a question of when a particular symptom becomes intolerable to someone in the environment, and what facilities are available in the community.

—McCarthy (*55*)

Speech Defects

In chapter 6 we suggested that language abilities in reading, writing, and speaking should be considered as three aspects of a whole. All three of these communication skills develop concomitantly, with speech starting somewhat sooner than the others. Regardless of how we view the interrelations among these three aspects of language skills, difficulties of speech present problems in child adjustment that make them of special importance to the clinical psychologist.

SPEECH DEVELOPMENT

Speech we shall take to mean the production of articulate sounds and patterns of such sounds as are conventionally accepted and understood. If in this limited sense one wishes to view speech largely as a motor phenomenon then one might take the stand that the majority of speech disorders result essentially from faulty use of the elaborate mechanism

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This chapter was written by Jack Matthews, University of Pittsburgh.

The author is deeply indebted to Ernest J. Burgi, graduate student in Speech and Hearing Disorders at the University of Pittsburgh, who aided in the revision of this chapter.

required for speech production. As with other motor performances adequate skill must be learned. The infant exhibits apparently incoördinated movements of the hands and arms before he learns to grasp an object. Does he also exhibit vocalization which may be considered of a haphazard sort? Irwin (*40*) has shown that the seemingly chaotic vocalizations of early infancy display an orderliness of development. The neonatal vocalizations are largely of a vowel character. Irwin and Curry (*41*) reported that the "front vowels" comprised the majority of all sounds uttered by the infant. Probably all the sounds, consonant as well as vowels, which will later be utilized in speaking are produced by the infant in his early vocal play. As the child matures and learns to utilize the consonant sounds in speech, he uses them more frequently in the initial position in a word, than in the medial or final positions. Irwin (*40*) showed that final consonants seldom appeared during the first year and never approximated initials or medials in terms of frequency. The labial (lip) sounds [m], [b], [p],[1] are the earliest consonants the child learns to use in speech. Metraux (*58*) found that vowel production is more than 90 percent correct by 30 months and consonant production at least 90 percent correct by 54 months.

Mowrer (*63*) believes that for the child to acquire speech and language normally he must have agreeable experiences with the speech of his environment. He reports on studies involving teaching "speech" to birds. The bird learns to imitate sounds as the result of a love or "positive cathexis" for the human trainer. Mowrer suggests that up to a point, speech acquisition in humans follows a similar course. However, as soon as the infant is able to combine words and phrases into *original* sentences, his language is beyond that which "talking birds" can learn.

Shirley (*87*) reports the following as the usual sequence in the development of language: (1) vocal grunts of a reflex character, (2) vocal play introducing syllabic vocalization, (3) socialized vocalization, (4) expressive tone and inflection, (5) comprehensible words, (6) use of pronouns, (7) use of phrases and sentences. Van Riper (*6*) gives a detailed description of speech development and relates the development of speech to the child's motor development. West (*7*), Gesell and Ilg (*32*), and McCarthy (*55*) have also given descriptions of normal speech and language development. In order for such development to proceed normally, the child must be able to hear the speech present in his environment. The speech he hears must be acceptable to the society in which he lives, since the speech patterns he hears will be the ones he learns. The child must also possess an adequate mechanism for speaking in order to form motor habits that will result in speech similar to that of other people.

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[1] Throughout the chapter sounds will be represented by International Phonetic Alphabet symbols.

When one considers the complexity of the speech apparatus, he must wonder, not why so many children exhibit speech disorders, but why more children do not. As Travis (*94*) points out, none of the many organs involved in sound production subserves that end alone, nor does their phylogenetic history suggest any such use. One may think of speech as a modified type of respiration. A stream of air from the lungs, controlled by the synergic action of all the muscles required for respiration, is forced through the larynx. The action of the vocal cords modifies the air stream in such a manner that a series of complex sound waves are generated. This sound, traveling with the expired air, passes into the pharyngeal, oral, and nasal cavities, where it is further modified in terms of resonance. It is again modified by the action of the articulating mechanism (primarily tongue, teeth, and lips) in interrupting the flow of air. All these parts must work in perfect synchronization. Interference with the operation of any part may result in faulty speech production.

Incidence

Disorders of speech are probably more prevalent than is generally recognized by the lay public. In the report of the White House Conference on Special Education (*103*) published in 1931 the Committee on the Defective in Speech presented what was probably the most extensive data on the incidence of speech defects at that time. Forty-eight cities with populations over 10,000 answered the Committee's questionnaire with sufficient completeness to permit the calculation of incidences. The reported percentage of children with speech defects in these cities ranged from 1.0 to 21.4. The median and mean of the percentages was 6.9; an average calculated from the totals was 5. The wide variations in percentages reported probably result largely from different standards of judging defects. Many writers have indicated the incidence report in the 1931 study to be conservative. Pronovost (*69*), reporting on a survey of services for the speech and hearing handicapped in New England reported that 7.8 percent of 87,288 individuals tested were handicapped in speech.

A report of the American Speech and Hearing Association Committee on the Midcentury White House Conference (*13*) appeared in 1952. The incidence of types of speech defects reported by this committee is shown in Table 41. As evidenced by Table 41, the total incidence of speech handicaps was estimated at 5 percent. Based on current population figures approximately 2,000,000 children between 5 and 21 years of age were estimated to have defective speech. The committee members, however, added this statement concerning the estimates:

TABLE 41. Incidence of Types of Speech Defects (1950 White House Conference)

Type of Defect	Ages 5–21 years %	Ages 5–21 years No.	All ages No.
Functional articulatory	3.0	1,200,000	4,500,000
Stuttering	0.7	280,000	1,050,000
Voice	0.2	80,000	300,000
Cleft palate speech	0.1	40,000	150,000
Cerebral palsy speech	0.2	80,000	300,000
Retarded speech development	0.3	120,000	450,000
Impaired hearing (with speech defect)	0.5	200,000	750,000
Total	5.0	2,000,000	7,500,000

> It is to be stressed that the figures are presented as the lowest defensible estimates; they would be regarded as serious underestimates in certain respects by some authorities. They leave out of account an estimated additional 5 percent, or 2,000,000 children who have relatively minor speech and voice defects, unimportant for the most practical purposes but serious in their effects on personal and social adjustment in some cases, and obviously significant for children destined for fields of work, such as teaching, requiring good speech. (*13*)

It is evident from Table 41 that the "nonorganic" or functional articulatory defects were by far the most common. Stuttering was the next most frequent type and the other types (voice, cleft palate, etc.) were less prevalent.

DELAYED SPEECH

The term *delayed speech* refers to the speech of children who either do not talk or who perseverate habits and patterns of infantile speech. Van Riper (*6*) points to the difficulty of classifying delayed speech into any one symptomatic category. In terms of vocabulary deficiency, retarded sentence structure, and inadequate idea formulation, delayed speech is a *language* rather than a *speech* disorder.

Speech pathologists are in general agreement regarding the causes of delayed speech. A typical listing of causes is that of Van Riper (*6*): "The common causes of delayed speech, all of which should be considered in exploring the child's history, are: low mentality, deafness, poor coördinations due to disease or paralysis, prolonged illness (especially in the first two years of life), lack of necessity or motivation for speech, improper teaching methods used by parents, shift of handedness or confused hand preference, necessity for learning two or more languages simultaneously, shock during the act of speaking, emotional conflicts, and aphasia." Goodwin (*35*), upon reviewing data on 454 cases of speech retardation, concluded that mental retardation was the most frequent causal factor. Of the 454 cases of speech retardation, 241 had I.Q.'s of less than 70. The relationship of speech retardation and mental retardation was considered such a close one by Binet and Simon (*17*) that they employed the absence of speech functions as a basis for classification of the mentally retarded. To Binet and Simon an idiot was a child who never learned to speak or understand the speech of others—this inability being due to mental retardation and not to defective hearing nor defects in the speech mechanism.

Comparatively few studies have been carried out to determine the relationship between intelligence and speech retardation. Kennedy (*48*) examined the speech status of 32 retardees with I.Q.'s below 20 and chronological ages from 7 years 9 months to 38 years. Of these, 22 were completely mute, nine produced only jabbering, and only one produced recognizable words. These words were used in nonmeaningful and irrelevant contexts. Town (*93*) studied several aspects of language (understanding gestures, imitating gestures, making voluntary gestures, understanding words, speaking a word) in a group of 50 idiots divided into low-, high-, and middle-grade intelligence levels. His data suggest that among idiots language development is directly related to intelligence. Lapage (*52*) found that "high-grade" defectives acquired speech at 20 months compared with 41 months for "low-grade" defectives. Abt, Adler, and Bartelme (*9*) studied the relationship between speech onset and intelligence in 1000 boys and girls whose I.Q.'s ranged from 10 to 159. For boys the correlation between age of speech onset and intelligence was −0.41 and for the girls −0.39. The studies cited above, as well as the work of Mead (*56*), Meader (*57*), Karlin and Strazzula (*46*), and Wallin (*99*), suggest that on the average the mentally retarded child acquires language and speech considerably later than the child of normal intelligence.

There is no question that low intelligence is often the cause of delayed speech. There is, however, the possibility that in some instances delayed speech may be the cause of *apparent* low intelligence. Van Riper (*6*), Berry and Eisenson (*1*), and Beckey (*16*) all suggest the possibility that delayed speech prevents a child from revealing his intelligence on intelligence tests heavily loaded with items requiring linguistic competence. They also offer the possibility of "raising the I.Q." of children with delayed speech by teaching the children to speak. Research evidence to support such a possibility is difficult to find. It is the author's opinion that speech therapy may have been given credit for "raising the I.Q." in instances where the pre-speech therapy intelligence has not been accurately assessed. Matthews and Birch (*54*) have enumerated a number of problems encountered in estimating the intelligence of the speech handicapped and have suggested some requirements of tests employed to assess intelligence of individuals with speech and hearing problems.

Ability to speak is partly dependent on the ability to hear. Therefore, hearing loss may result in delayed speech. If the child is born deaf, or becomes deaf early in infancy he will likely not talk at all without considerable special training. Hearing losses of various kinds other than total deafness may also affect speech. Whether or not the hearing problem will result in delayed speech will depend considerably upon the nature and degree of the hearing loss. Differential diagnosis between mental deficiency and inadequate speech behavior resulting from deafness is difficult in young children. In any case where there is a possibility of a hearing loss, a thorough examination should be made by a competent otologist or audiologist.

Other causes of delayed speech occur but an examination of the records of several hundred cases of delayed speech seen in the University of Pittsburgh Speech Clinic during the past five years indicates that in this clinic setting other causes were found only occasionally. Emotional disturbance, brain injury, and lack of motivation for speech not only appear occasionally as the primary cause of delayed speech but are sometimes found associated with the more frequent causes of mental retardation and hearing loss. Myklebust (*64*) has described a number of techniques which may be used with a child with delayed speech in establishing a differential diagnosis of hearing loss, aphasia, mental retardation, and emotional disturbance.

The treatment of delayed speech will, of course, depend a great deal upon the nature of the individual case and the etiological factors which are involved. The child with a hearing loss may need the help of a trained teacher of the deaf or an audiologist, depending upon the specific nature of his condition. In the past, the mentally deficient child who was speech handicapped has not usually been considered for speech therapy. There are indications, however, that speech therapy for many mentally handicapped children can be helpful. Schlanger (*77*) has shown that speech therapy with mentally retarded children can be successful. The conclusions of Schneider and Vallon (*78*) and Sirkin and Lyons (*88*) support the findings of Schlanger that speech therapy with mentally retarded can produce beneficial results.

Therapy procedures for delayed speech resulting from other causes are discussed by Van Riper (*6*). These procedures involve providing a stimulating environment in which the child is "surrounded" by speech and in which he gradually is taught to associate speech sounds with important objects and people in his environment.

ARTICULATORY DEFECTS

Classification of Sounds

The sounds used in speech are usually classified into three general categories: (1) vowels, (2) diphthongs, and (3) consonants. The vowel sounds are produced first by a vibration of the air column by the vocal cords and then by resonance, primarily in the cavities of the mouth, nose, and pharynx, and finally by interruption of the air stream by the articulation mechanisms—the teeth, tongue, lips, and velum. The diphthongs are sounds which consist of two vowel elements closely blended together. They are produced in the same manner as the vowels. The vowels and diphthongs together comprise the numerous variations of the sounds represented by the English letters, a, e, i, o, and u. The consonant sounds may be either *voiced* or *unvoiced*. The voiced consonants are produced in a manner similar to the vowels and diphthongs except that the articulatory mechanism provides much more obstruction to the air stream for the production of the consonants than for the production of the vowels. The unvoiced consonant sounds are produced in a manner similar to the voiced consonants except that the unvoiced consonants do not contain "voice" resulting from vibration of the vocal cords. They are frequently referred to as *whispered* sounds. Vowel and diphthong sounds are usually classified according to the place of articulation in the oral cavity. However, since few disorders of articulation are disorders of vowel or diphthong production, such a detailed consideration of them is unnecessary for our purposes here.

Consonant sounds have been classified according to the manner and place of articulation. The manner in which the obstruction occurs will result in one of the following kinds of consonant sounds: (1) A *nasal* sound, e.g., [m] or [n], is one in which the air stream is obstructed by the soft palate so that most of the air is emitted through the nose as the sound is produced. (2) A *plosive* sound, e.g., [p] or [b] (frequently called stop-plosive), is produced when the air stream is stopped, pressure is built up behind the obstruction, and then is "exploded." (3) A *fricative* sound, e.g., [s] or [z], occurs when the obstruction is sufficient to produce an audible "friction" element. (4) *Affricate* sounds, e.g., [tʃ] or [dʒ] result when there is a combination of a plosive and fricative element occurring almost simultaneously. (5) A *glide* sound, e.g., [w] or [j], results when the articulatory mechanism moves *during the production of a sound* from a vowel position toward the position for the next sound in a word. (6) Two sounds of our language, the [r] and the [l] are produced with less obstruction than most other consonants. They have characteristics much like those of vowels. They are called *semivowels* and are used frequently as *syllabic consonants*. In such cases, their function in a word is much the same as a vowel.

The location of the interference to the expired air is also used to aid in classifying the consonants. When the obstruction to the air stream is caused by the lips the resulting sound is referred to as a *labial*, or lip sound, e.g., [m] or [p]. Since both lips are involved, these sounds are frequently classed as *bilabial*. If the sound results from obstruction by the lower lip and upper teeth, the sound is referred to as *labiodental* or lip-teeth sound, e.g., [f] or [v]. *Linguadentals* (sometimes called *interdental*), e.g., [θ] or [ð], result when the tongue is protruded between the teeth. When the air obstruction results from the tongue being lifted up to the "post dental" area behind the upper front teeth, the resulting sound is usually classified as *postdental* or *dental alveolar*, e.g., [t] or [d]. *Velar* sounds, e.g., [k] or [g], result from raising the back of the tongue to the velum (soft palate). One consonant sound in English, [h], results from a small amount of obstruction at the *glottal* position.

Table 42 (except for the affricate column which has been added) is

Table 42. American English Consonants Classified According to Manner and Place of Articulation and Presence or Absence of Vocal Cord Vibration

Manner of Articulation

Place of Articulation	Nasal	Stop-Plosive		Semivowel	Fricative		Affricate		Glide	
	Voiced	Voiceless	Voiced	Voiced	Voiceless	Voiced	Voiceless	Voiced	Voiceless	Voiced
Labial	m *m*a*m*a	p *p*ut	b *b*a*b*y						ʍ *wh*at	w *w*ater
Labiodental					f *f*ish	v *v*ote				
Linguadental					θ *th*ink	ð *th*is				
Postdental				r *r*un	s *s*un	z *z*ero				
	n *n*ote	t *t*en	d *d*ip	l *l*ady	ʃ *sh*ip	ʒ trea*s*ure	tʃ *ch*ip	dʒ *j*ump		j *y*ellow
Velar	ŋ ri*ng*	k *k*ite	g *g*ood							
Glottal					h *h*ow					

based on Fairbanks' (*29*) classification of the consonant sounds in American English usage. The first line of each entry shows the sound in symbols of the International Phonetic Alphabet. The second line of each entry lists a word with the given sound underlined.

Nature and Incidence

Articulatory defects involve faulty sound production or faulty use of sounds. Usually articulation defects involve the consonant sounds and result from improper tongue, lip, or velar activity. Milisen (*59*) suggests that defective articulation is a substitute response for normal articulation resulting from the disruption of the normal learning process. The breakdown in the normal learning process may occur at any time during the child's learning and for numerous reasons.

Many terms, such as lisping, lalling, "baby talk," etc., have been used to label various articulation disorders. Articulatory disorders have been classified by Fairbanks (*29*), into five categories.

1. Substitution or tendency toward substitution of one consonant for another
2. Voicing error, or substitution of the voiced or voiceless correlative
3. Distortion
4. Slighting
5. Omission

Roe (*72*) employs a more widely used classification which divides articulation errors into sound substitutions, sound distortions, sound omissions, and sound insertions. Backus (*14*) adds to this classification an additional category, *indistinct articulation*. Milisen and his associates (*59*), in presenting the most comprehensive recent clinical and experimental reports on articulation disorders, use a classification of *omissions*, *substitutions*, and *degrees of distortion*.

An examination of Table 41 indicates that articulatory disorders are by far the most frequently occurring type of speech problem. Some investigations have pointed to the change in incidence of articulatory disorders with grade. Louttit and Halls (*53*) and Wallin (*98*) conducted surveys which indicated a decided decrease in incidence of speech defects with increase in grade. The majority of this decrease in incidence of speech disorders with grade appears to be due to a decreasing number of articulatory defects. Roe and Milisen (*73*) examined 1989 unselected children in grades 1 through 6. They found a significant decrease in articulatory errors from grades 1 through 4 but no significant decrease from grades 4 to 6. They concluded that maturation seemed to decrease the articulation errors in grades 1 through 4 but produced little improvement in articulation between grades 4 and 6.

Saylor (*75*) evaluated 1998 pupils in grades 7 through 12 in much the same manner that Roe and Milisen (*73*) had done for the earlier grades. She found little improvement in articulation between grades 7 and 10 and only a slight improvement between grades 10 and 11. Grade 12 children had essentially the same number of articulatory problems as those in grade 11. Saylor's findings indicate only a slight decrease in the number of articulation errors from grades 6 through 12. In high school as in the elementary grades, children with articulatory problems comprise the largest group of speech-handicapped children.

The total number of children retaining their articulation problems to adulthood is substantial. Morley (*62*) reported the results of a ten-year survey of freshmen entering the University of Michigan. During this period 33,339 students were examined and 3.85 percent of them were judged to have speech defects. Of this group of college students with speech defects, approximately one-half were defective in articulation.

Examination

Information concerning the child's ability, educational achievements, home circumstances (especially speech and language environment), and physical condition are usually a useful and frequently a necessary part of the examination. In addition, a specific examination must be made of the child's articulation of the individual sounds. We are concerned here primarily with the consonant sounds since, as has been pointed out, the disorders of articulation are most likely to be the result of defective consonant sounds. It is necessary to discover the child's ability in producing the individual sounds in the three possible positions within a word: initial, medial and final. An accurate description of the child's consonant articulation in this way will enable the therapist to approach corrective work with an understanding of the child's specific sound problems.

Examining the articulation of a child old enough to read can be accomplished by listening to him read specially constructed word and sentence lists. Children who cannot read may either be asked to repeat words after the examiner or to name pictures of familiar objects in an attempt to elicit from them specific spontaneous speech responses. There appears to be some difference of opinion regarding the relative diagnostic merits of the "repeated" or "spontaneous" speech responses. Templin (*92*) examined 54 boys and 44 girls ranging in age from 2 years 1 month to 5 years 9 months. One of her objectives was to determine whether or not there was any difference in response when the child responded spontaneously (to a picture stimulus) and when his response was in imitation of an oral stimulus. She recorded the tested sound as either correct or incorrect. No evaluation was made of *degree* of error. She found no significant difference between the two methods of testing and concluded that neither method was superior to the other.

Snow and Milisen (*89*) point out that practical clinical experience leads some clinicians to believe that oral stimulation will change the pattern of response. They tested 164 subjects referred from the second, seventh, and eighth grades of the white schools of Fayette County, Kentucky, public schools. None of the children was receiving or had ever had any speech therapy. They administered both oral and picture tests to the second grades. In place of the pictures, the 7th and 8th graders were given a printed word. They were also tested with oral stimulation similar to that employed by Templin (*92*). Snow and Milisen report that the children did not give the same articulation responses to both tests, and that there was a consistent differential in favor of better responses to the oral test. It should be noted that in scoring Snow and Milisen used two methods: (1) They used the procedures of comparing correct versus incorrect responses as Templin had done (Snow and Milisen refer to this as "the older method"), and (2) they took account of *degrees* of articulation error instead of merely incorrect versus correct. In both instances the articulation responses were better for the oral stimulation.

The examiner, in testing articulation, should be careful to present material with which the child is familiar. Picture tests are available from many sources or the examiner can construct his own. Bryngelson (*22*) presents one such picture test. In recording the test results the examiner should be careful to record not only whether the sound made by the child is incorrect or correct, but, if possible, the type and degree of the error as well.

Causes

Articulatory disorders are sometimes grouped, conveniently, into (1) "functional" and (2) "organic" categories in terms of possible causal factors. Although these two categories cannot always be presumed to be mutually exclusive, they do provide a convenient outline for discussing the etiological factors in articulation disorders.

As can be seen from Table 41, the functional disorders of articulation constitute the majority of all speech problems. Because speech is a learned activity, functional disorders of articulation may result from various kinds of inadequate or faulty training, emotional problems or other "nonorganic" factors.

We have previously pointed out (see section on Delayed Speech) that there is a much greater incidence of speech handicaps among the mentally retarded than among the normal population. We can conclude from the studies of Kennedy (*48*), Sirkin and Lyons (*88*), Schlanger (*76*), and Van Riper (*6*) that faulty articulation is frequently associated with low intelligence. If the child is severely mentally retarded his training in articulation may be inadequate because of difficulty in learning in general.

Reid (*70*) studied the relationship between functional articulatory defects and numerous other factors in elementary school children. She concluded that in children with I.Q.'s above 70, articulation ability is not related to and cannot be predicted from intelligence. However, as we have also previously pointed out, the assessment of intelligence in the speech-handicapped child is often a difficult process. Backus and Beasley (*15*) feel that intellectual evaluations of the speech-defective child should be made tentatively, with ample consideration being given to the conditions under which the evaluation is made.

Faulty training resulting from various kinds of inadequate speech environment is probably one of the most frequent causes of articulatory defects among young children. The child learns to articulate sounds correctly by imitating the sounds that he sees and hears. If the speech models are defective, he learns defective speech. A child can hardly be expected to develop correct articulation if he is encouraged to continue a sound substitution or other misarticulation which his parents, relatives, or teachers regard as "cute." There are many ways in which the "teaching methods" of parents or other people in the child's environment may result in a lack of motivation for good speech. For a detailed description of etiological factors contributing to functional articulatory defects, the reader is referred to Van Riper (*6*), Johnson (*3*), and Berry and Eisenson (*1*).

Although functional articulatory disorders are by far the most common, there are organic factors which may affect the child's articulation adversely. Such organic disorders may be in the central nervous system as in cerebral palsy. Frequently the speech characteristics resulting from central nervous system disorders will show involvements of a phonatory as well as an articulatory nature. Peacher (*68*), Berry and Eisenson (*1*), and West, Kennedy, and Carr (7) have given detailed discussions of articulatory disorders resulting from lesions of the central nervous system.

Structural disorders of the peripheral speech organs have often been cited as causes of articulation disorders. Such abnormalities include defects in lip structure, unusually large or small tongue or other tongue disorders, short space between the anterior end of the frenum and the tip of the tongue (tongue-tie), extremely high palatal arch, pathologies of the nose and sinuses, various dental abnormalities (including malocclusions, irregular tooth placement), and defects in the maxillary mandibular relationship. An analysis of many hundreds of cases seen in numerous educational, psychological, medical, and dental clinics associated with the University of Pittsburgh Speech Clinic revealed comparatively few instances of articulation disorders caused by any of the above-mentioned structural abnormalities of the speech mechanism. Our own clinical experience suggests that the structural abnormalities associated with cleft palate are far more important as causative factors in articulation disorders than all the other structural disorders of the peripheral speech organs enumerated above.

We have pointed out that defective hearing is a common cause of delayed speech. Defective hearing may also cause articulatory disorders. If the child does not hear a sound accurately he will likely not be able to learn to use it correctly. The particular sound difficulties he exhibits as the result of his hearing loss will depend to a large extent on the nature and severity of the hearing loss. Various tests of the child's ability to discriminate between the sounds he hears have been devised. Travis and Rasmus (*97*) and Templin (*91*) have developed such tests. Sound discrimination tests, together with pure tone audiometric examinations, provide much useful information with which to evaluate the efficiency of hearing. Reid (*70*) and Kronvall and Diehl (*51*) have reported that disabilities in speech sound discrimination are related to disorders of articulation.

Management

Schlanger (*77*) has pointed out that, although speech therapy for some mentally handicapped children is successful, we must recognize that the degree of retardation will in part determine whether or not we can profitably treat the retarded child. There is little research to guide us in the acceptance or rejection of the advisability of attempting speech therapy with severely retarded children. Schlanger (*77*), Schneider and Vallon (*78*), and Sirkin and Lyons (*88*) have demonstrated that speech therapy with mentally retarded can produce beneficial results. If one accepts the proposition that speech therapy can be successful with the mentally retarded it is still necessary to make a value judgment as to the worth-whileness of such therapy. Should we add to the shortage of speech correctionists by diverting trained personnel to work with speech-handicapped mental defectives? The answer to this question given by Blanton and Blanton (*18*) over a quarter of a century ago seems to this writer equally valid today. "This [the amount of time the speech teacher is justified in devoting to the mentally retarded] must be decided on the merits of each individual case and of the learning ability and temperament of the child. While with the present scarcity of trained teachers in the speech field it would hardly be wise that the abnormal should be cared for and the normal child not, still, the speech defect may be the one added handicap that makes of the high-grade deficient a pauper or a criminal."

In the case of the child with a structural abnormality, the organic defect may need correction before speech therapy is attempted. Depending on the situation, speech therapy may proceed in conjunction with or await the correction of the organic disorder. In many instances where complete correction of the structural anomaly is either not advisable or possible, speech therapy may nevertheless prove very beneficial. In the majority of the instances, surgical or dental correction of an anatomical disorder will not, in and of itself, result in adequate speech. In the case of a repaired cleft palate, for example, speech therapy is usually essential. If surgical repair or dental prosthesis is deemed advisable by the specialist involved, speech therapy may both precede and follow the surgery or dental procedures, depending upon the particular individual needs of the client.

Correction of articulatory disorders may be considered primarily a matter of reëducation. Speech habits, as Travis (*94*) pointed out are "total reaction patterns," and speech training therefore should likely take cognizance of this fact. In any event, correction of articulatory problems involves the process of teaching the child how to produce and use individual sounds correctly in speech. In general, the child is usually taught first how to produce the sound in isolation, then in combination with other sounds, and then in words, sentences, and conversation. Daily practice is necessary until the new sound pattern becomes habitual. It should be noted that this exact procedure is not followed by all therapists in every instance. Backus and Beasley (*15*) suggest a group therapy procedure in which whole speech responses are first encouraged. Scott and Milisen (*84*) suggest that the large number of methods for correcting defective articulation may be classified under three broad general headings: the phonetic-placement method, the moto-kinesthetic method, and the stimulus or stimulation method. The phonetic placement method involves teaching the child the various movements and positions of the articulatory structures with the goal of conscious control of movement and positioning. Training involves instructions and exercises to accomplish this goal. The moto-kinesthetic method involves mechanical or manual manipulation of the child's articulating mechanisms in order to obtain proper positioning of the mechanisms. The stimulation method involves presenting the sound with either auditory or visual stimulation, or both, and having the child imitate what he sees and hears. Scott and Milisen (*84*) attempted to evaluate the effectiveness of visual stimuli alone and auditory stimulation. They concluded that the combined visual-auditory stimulus was the most effective. Materials beneficial for use in articulation therapy have been published by Van Riper (*6*), Berry and Eisenson (*1*), West, Kennedy, and Carr (7), and Johnson (*4*).

RHYTHMIC DISORDERS

The production of proper speech sounds in connected discourse depends not only on the ability to articulate properly, but also on the satisfactory coördination of respiration and the activity of the whole speech apparatus. When this rhythmic coördination is interfered with, the individual is unable to speak smoothly. Observation of his speech shows repetition of single sounds and of syllables, and sometimes an inability to produce a sound at all. Such arhythmic disorders are called stuttering.

The most immediate symptom of stuttering is the person's speech. He repeats syllables, words, or sometimes phrases, especially when starting to speak. Sometimes the repetition is only of a beginning sound as in r-r-r-run; sometimes attempts to say words starting with particular letters may be entirely blocked in a tonic spasm. Some stutterers have particular difficulties with vowels and certain consonants, while others show no specificity. The disorders in speech are not, however, the only symptoms of stuttering. Travis (*94*) lists no fewer than fourteen as follows: (1) Opposition of thorax and abdomen action. (2) The larynx may move synchronously with the abdomen, the thorax, or both, instead of with the independent movement shown in normal speech. (3) Marked protraction of inspiration and expiration. (4) Marked inequality in the extent of consecutive respiratory movements. (5) Interruptions of expiratory by short inspiratory movements. (6) Clonic and tonic spasms of the musculature of any part of the speech apparatus. Such muscular spasms may be evident in nonspeech musculature. (7) Tremors in certain movements of the speech mechanism. (8) Tonal rigidity in the voice because of abnormal tension of muscles controlling the vocal cords. (9) Tones held an abnormally long time. (10) Periodic fluctuation of breath pressure. (11) Characteristic variations in the form, extent, and length of consecutive voice waves. (12) Extremely brief approximation of the vocal bands before and between tones. (13) Extreme abruptness of initiation of tones. (14) Disintegration in the movements of the speech mechanism as a whole. Travis (*94*) has summarized the researches of himself and others and has published typical curves illustrating a number of these symptoms. We refer the reader to his work for an extended discussion of this symptomatology.

In a somewhat more comprehensive fashion Brown (*20*) suggested that most, if not all, of the students of stuttering problems are agreed on the following ten points regarding the nature of the disorder:

1. Stuttering is a disorder of speech characterized by clonic or tonic spasms of one or more parts of the peripheral speech mechanism, and by the resultant interruption or inhibition of the rhythm of speech.

2. The immediate physiological cause of stuttering is neuromuscular incoördination in one or more of the peripheral speech organs.

3. This neuromuscular incoördination is usually accompanied by (a) general hypertonicity of other muscle systems, and (b) more or less marked evidences of emotional disturbances.

4. With most stutterers the incoördination is greater in certain

social situations than in others, and in some situations it does not occur at all.

5. Most stutterers, while stuttering, present either physical and emotional evidences of fear or anger or both, or muscular tensions indicative of suppression of the outward manifestations of these emotions.

6. Most adult stutterers say that they have a fear of stuttering, a fear of meeting strangers or persons in authority, or a fear of certain situations; that they are often angry at themselves for being afraid or because they stutter; that they are sometimes angry at others in whose presence they stutter; that they are embarrassed or self-conscious; that they have feelings of self-pity, inferiority, or superiority; that they know what they wish to say but cannot say it.

7. Most children who stutter show marked indications of similar mental or emotional states, although many are not sufficiently familiar with the terminology to describe them as such.

8. The environment, *per se*, as a rule, contains no adequate stimuli for the production of stuttering or its physical and emotional concomitants. That is, only about one person out of one hundred is stimulated to such reactions in a given situation.

9. Thorough medical and anatomical examinations reveal, in most cases of stuttering, no diseases or defect of the organs of speech or of the nervous system which are sufficient, in nature or extent, to produce the disorder.

10. The neuromuscular incoördinations which result in the type of speech designated as stuttering, and the physical and emotional reactions which usually accompany them, do not occur without cause.

More recently Reid (*71*) has listed a number of "facts" about stuttering which would probably be accepted by many though not all speech pathologists. These "facts" are based on published studies reviewed by Reid.

1. Incidence—About 1 per 100.

2. Age of onset—Of those who stutter, 85 percent show symptoms before age 8. Remaining 15 percent begin by adolescence.

3. Sex—More boys stutter than girls. Sex ratios reported in literature range from 2:1 to 10:1.

4. Variability—Both the nature and severity vary from person to person as well as within the same person from time to time and situation to situation.

5. Heredity—Stutterers are reported to have more stuttering ances-

tors than nonstutterers. This has been cited by some to show an inherited tendency. Others believe this simply provides environmental pressures which lead to stuttering.

6. Left-handedness—Reports differ as to whether more stutterers are left-handed than nonstutterers.

7. Similarity—Most stutterers can sing and read in concert with fluency and show greater fluency talking aloud by themselves and when engaging in rhythmical activities.

8. Nonstuttering groups—Both diabetics and North American Indians have been reported as groups not stuttering or very rarely stuttering.

9. Other items—Greater incidence of stutterers found in twinning than nontwinning families. Position in family and frequency of stuttering appear related. Amount of difficulty stutterers have with words appears related to position of word in sentence, its length, its grammatical function, and sound with which it begins, etc., etc.

Incidence

The data in Table 41 indicate 14 percent of children with speech disorders exhibit stuttering. From this table we also see that stuttering is reported to occur in 0.76 percent of the general population. Most surveys, as Travis (*95*) has pointed out, agree that the incidence of stuttering is about 1 percent.

The incidence among boys is much higher than among girls. Various estimates of this difference between the sexes in regard to stuttering vary from 2 to 1 to 10 to 1. The reason for the greater frequency of stuttering among boys has not been completely explained. Schuel (*80*) gives detailed consideration to sex differences related to stuttering and characteristics of growth and development. She points out that in many areas (birth injuries, infant deaths, susceptibility to disease, speech retardation, etc.) boys have more difficulties than girls. She hypothesized that the male child encounters more unequal competition and more frustrations, particularly in relation to language situations, than the female. On the basis of several studies Schuel (*81*) concludes that the sex difference in incidence of stuttering is explained by a combination of physiologically determined factors and responses to culturally determined stimulus complexes that are different for boys and girls.

Etiology

Much writing on stuttering has been concerned with the nature and etiology of the condition. Numerous explanations of the nature of stuttering have been suggested. Hahn (*2*) summarized a number of them. Brown (*20*), Ainsworth (*10*) and others have categorized and discussed various theories which have appeared in the many writings on this subject. In spite of the amount of attention given to this aspect of the stuttering problem, various theories concerning the etiology and nature of stuttering still are widely divergent.

Attempts to classify various stuttering theories according to type are limited by the fact that the theories do not fit neatly into suggested categories. Frequently theories overlap the boundaries between categories. Nevertheless, such classification seems beneficial from the standpoint of suggesting directions in which this literature has pointed. Reid (*71*) referring to this literature concludes:

> So far the discussion has brought into focus three basic issues. (a) Is the stutterer constitutionally different from the nonstutterer? (b) Can stuttering be accounted for on the basis of environmental factors? (c) Is the stuttering a disorder of the personality? . . . A speech pathologist usually subscribes to some modification of one of these three general theories, but the problems that confront him are so complex and varied that he leaves ajar the door to the other two.

Following a similar procedure, we shall consider (1) dysphemic theories suggesting that the stuttering is related to some constitutional abnormality, (2) personality theories which suggest that stuttering is related to some form of maladjustment, and (3) developmental theories which suggest that stuttering develops primarily as the result of environmental conditions.

Dysphemic theories. West (7) feels there is considerable support for a point of view which recognizes some physiological factor in stuttering. He refers to the studies of Kopp (*50*) on blood chemistry, Kennedy and Williams (*49*) on allergy, and Palmer and Gillet (*66*) on heart rates to support the point of view that stutterers differ from nonstutterers physiologically. He also suggests that biological hereditary factors are present in stuttering.

Travis (*94*) has been the best-known proponent of a neurological theory which holds that stuttering results from a lack of dominance of one cerebral hemisphere over the other and over lower neural levels. Because of bilateral innervation of the various pairs of speech muscles it is necessary to have a single dominant neural control if there is to be integrated action of the speech mechanism. This action can be secured only by the existence or establishment of one-sided cerebral dominance.

Karlin (*44*, *45*) suggests that stuttering is due primarily to a slower process of myelinization of the cortical speech areas. He believes that myelinization is correlated with function. A delay in such myelinization to Karlin is the basic cause of stuttering.

Personality or neurotic theories. Among early workers on the American scene, Blanton and Blanton (*18*) and Fletcher (*30*) held theories which considered stuttering a mechanism overtly symptomatic of personality conflict. Schroeder and Ackerson (*79*) gave support for this theory in a study which reported small positive tetrachoric correlations between stuttering and personality disorders; and negative correlations with conduct disorders. Rotter (*74*) later formulated the theory in terms of need and availability. The need represents a drive or goal-directed behavior toward securing security or approval, or avoiding embarrassing situations or failure. This is common to the development of any disorder of the personality type. Rotter claims that stuttering develops as the symptomatic behavior because it, rather than something else, is available in the child's environment. This availability may be represented by someone else in the family who stutters, by parental reaction to rapid speech or "stumbling over his words," or by deviating speech of some sort so that the child finds that he belongs "in a special class of people because of his speech."

Although Travis has been regarded in the past as an outstanding proponent of a neurological "cerebral dominance" theory, his present opinion (*96*) holds that stuttering is a psychosomatic disorder. He states that there exists a somatic variation in some individuals which creates a condition which, coupled with personality disturbances, may lead to stuttering. He expresses doubt that the somatic variant by itself would operate to produce stuttering.

Coriat (*24*) has developed the psychoanalytic theory of stuttering. In this view, stuttering occurs in those individuals in whom the libido has become fixed at the oral-erotic stage of development. It is claimed that the motor accompaniments of stuttering speech are replicas of behavior during nursing. Stuttering is a gratification of the infantile oral tendency; thus the stutterer unconsciously desires to stutter.

Learning or developmental theories. Probably the outstanding proponent of a "learning" theory of stuttering is Wendell Johnson, who considers stuttering to be a *semantogenic* and *diagnostogenic* condition. Johnson (*42*) reports on studies in which he attempted to examine the speech of stuttering children shortly after they began to stutter. He investigated the backgrounds of 46 stuttering and 46 nonstuttering children who were matched in terms of age, sex, and intelligence. He found that: "Practically every case of stuttering was originally diagnosed as such, not by a speech expert, but by a layman—usually one, or both, of the child's parents. . . . What these laymen had diagnosed as stuttering was, by and large, indistinguishable from the hesitations and repetitions known to be characteristic of the normal speech of young children."

Johnson holds that stuttering in children is quite different from stuttering in adults. In the stuttering adult, it is the anxiety, the fear, the effort, etc., exhibited during his nonfluencies that distinguishes the stutterer from the nonstutterer. In effect, Johnson says, the stutterer cannot tolerate the normal nonfluencies which the normal speaker calmly accepts and stumbles over. Further support for this concept comes from observations showing a lack of stuttering among North American Indians. Johnson states that the Indians have no word in their vocabulary for stuttering, and that the treatment of Indian children is extremely lax according to the white man's standards. The Indian child with his normal nonfluencies is accepted as a normal speaker and is not negatively evaluated on the basis of speech. Bloodstein, Jaeger, and Tureen (*19*) reported on the diagnosis of stuttering by parents of stuttering and nonstuttering children and concluded that the results were consistent with Johnson's finding. Moncur (*61*) also feels that environmental factors, particularly parental domination, are operating to influence the development of stuttering in children.

Sheehan (*85*) sets forth a conflict theory of stuttering which he summarizes as follows:

> 1. Stuttering is a resultant of approach-avoidance conflict, of opposed urges to speak and to hold back from speaking.
>
> 2. The "holding back" may be due either to learned avoidances or to unconscious motives.
>
> 3. Principal hypotheses concerning stuttering behavior spring from two fundamental questions: (a) What produces blocking? (b) What determines release?

> 4. The Conflict Hypothesis: The stutterer blocks or stops whenever conflicting approach and avoidance tendencies reach an equilibrium.
>
> 5. The Fear-Reduction Hypothesis: The occurrence of stuttering reduces the fear which elicits it sufficiently to permit release of the blocked word, resolving the conflict momentarily and enabling the stutter to continue.
>
> 6. In this way the symptom is reinforced and maintained, the anxiety is "bound" within it, and a vicious circle is perpetuated.
>
> 7. Conflict is directly expressed in primary symptoms of repetition and prolongation, which reflect a breakdown in the sequence of movements necessary to speech.
>
> 8. Secondary symptoms involve learned behavior representing compensatory efforts to overcome avoidance or to reach the goal by a roundabout route.
>
> 9. Conflict may occur at several levels—word, situation, emotional content, relationship and ego-protective levels; any particular moment of stuttering is determined by interplay of forces at these levels. . . .

Wischner (*104*) points out the association of stuttering and anxiety. He considers stuttering behavior to be a "learned anxiety reaction system."

It can be seen that even among those who consider stuttering as developmental in nature, there is recognition of the influences of the condition upon personality. In this sense many of the so-called developmental or learning theories are able to accept an approach which would consider stuttering as involving a specific "speech neurosis"—as distinguished from the more general neurosis presented in the so-called personality theories.

Although previous literature is filled with "theories of stuttering" and attempts to reconcile divergent theories the more recent literature is more accepting of the notion of multiple causality. Modern speech pathologists are considering the possibility that no single cause of stuttering operates in every case of stuttering and that we may very well find, as Ainsworth (*10*) has suggested, different kinds of stutterers.

Therapy

The earlier literature on stuttering was concerned primarily with the nature and etiology of the condition. Today there is more research and more writing on therapy than in the past. To a limited extent therapy approaches depend upon specific theories concerning etiology. Various forms of psychotherapy are suggested by those who conceive of stuttering etiology in terms of a general neurosis. The psychoanalytic theory, for example, would likely suggest psychoanalytic therapy. According to the neurological theory stuttering results from lack of cerebral dominance and therapy should be aimed at establishing a dominant gradient of excitation in the central nervous system. We could consider the differences in stuttering therapy in terms of the particular etiological theory subscribed to. However, therapeutic procedures apparently do not differ to the same extent as do theories about the nature and etiology of stuttering.

There seems to be widespread agreement that stuttering in young children should be handled differently from stuttering in older children or adults who have developed "secondary symptoms" (i.e., devices to avoid, hide, or postpone the stuttering blocks). Most of the authors discussing therapy for young children suggest the need for modification of the child's environment. Karlin (*45*) feels that the treatment of the preschool child should be handled through the parents and that there should be no direct speech therapy. Johnson (*42*) reporting on the investigation of 46 stuttering children cited earlier, indicated that it was necessary, in some instances, to bring about changes in the attitudes and evaluations of the child as a person and as a speaker. The specific needs in this respect varied among cases. In some instances it helped to expand the child's vocabulary in order to help lessen school tensions. In some instances the parents needed to be shown less severe methods of discipline, etc.

Van Riper (*6*) also discusses treatment in terms of environmental modification. He emphasizes prevention. In addition he describes "desensitization therapy," which involves procedures designed to help the child adapt to or tolerate the environmental influences which tend to disrupt fluency.

Wedberg (*100*), Schuel (*82*), and Henrikson (*38*) have pointed out the need for *environmental* modification in the treatment of the stuttering child. Glasner (*34*) has suggested that little has been accomplished in the field of preventive therapy. He feels there should be much more emphasis on the treatment of stuttering in children under five years of age.

Suggestions concerning therapy for adult stutterers are more numerous and at the same time more varied. Ainsworth (*11*) presents therapeutic procedures which include two objectives: (1) making the stutterer's overt behavior more acceptable, and (2) bringing about a better personality adjustment. These two objectives are commonly found among the suggested approaches to therapy for adult stutterers. In terms of the first objective, part of the therapy is designed to modify the overt behavior by removing such "secondary" reactions as avoidance mechanisms, starters, tensions, breathing irregularities, etc. Ainsworth (*11*) suggests procedures which include mirror practice, reading and speaking with a conscious effort to eliminate these "crutches," relaxation, breathing exercises, negative practice (consciously attempting to imitate stuttering block) talking objectively, teaching easy pattern of stuttering as a substitute for secondary reactions, etc. In terms of the second objective, better adjustment, an attempt is made to convince the stutterer that he is not "abnormal," that stuttering can be lived with, etc. Techniques which will help to immediately improve communication may also help in this procedure.

Various forms of counseling and psychotherapy have been proposed to help the adult stutterer. Abbott (*8*), who feels that repressed hostility is present in some cases, suggests that if this hostility exists it should be brought to consciousness gradually and with care. Honig (*39*) reports success with the clinical use of psychodrama. Schultz (*83*) reports an experiment which suggests the use of nondirective counseling. Clark (*23*) suggests the use of nondirective counseling as one method to help the stutterer with better adjustment, and in turn, more fluent speech. Sheehan (*86*) suggests a combination of speech therapy and psychotherapy to reduce "all tendencies to avoidance and of the fears which motivate them."

Wood (*105*) outlines procedures which he suggests be used to help the stutterer of high school and intermediate school age to modify his home environment in such a way as to reduce conflicts and tensions. Cypreanson (*26*) describes the clinical use of group therapy procedures which she feels are beneficial for adult stutterers. Gifford (*33*) is one of the outstanding supporters of the use of relaxation in stuttering therapy. She feels it is beneficial in releasing the tensions of the stutterer. Kastein (*47*) describes the "chewing method" of stuttering therapy developed by Froeschels (*31*).

Johnson (*43*) believes that the older child or adult, after he has interiorized his semantic environment, requires a more direct therapeutic approach than that employed with young children. He points out that no two stutterers are exactly alike and that any specific treatment measure which is relevant for one particular stutterer at a given time may not be appropriate for other stutterers or even for the same person at another time.

Anything that can be done to change the semantic environment, to modify attitudes and policies in the home, school, neighborhood or community, or to educate "public opinion" in the larger sense, helps to promote favorable changes in the individual's own evaluative behavior. Likewise any changes that can be brought about more or less directly in the stutterer's manner of stuttering in order to make it more bearable, may make it easier for him to evaluate it differently. Moreover, a program of physical hygiene will sometimes help to keep the individual "feeling good" so that he will have the energy for an enthusiastic and sustained attempt to overcome his difficulties.

Van Riper (*6*) has presented an approach to stuttering therapy which is perhaps more widely followed by students of speech correction than any other. He believes the therapist's first therapy goal is to help the stutterer to stop reinforcing his stuttering. Eliminating the stutterer's avoidance of feared words and situations is a necessary part of the initial procedure. It is the avoidance which "breeds the fear." The release from punishment which comes from finally uttering the word successfully, reinforces the stuttering behavior. Therefore, Van Riper suggests, this reinforcing procedure must be broken up.

VOICE DISORDERS

According to Table 41 about 4 percent of speech-handicapped children exhibit disorders of voice. Harrington (*37*) believes that most children's voice problems can be broken down into (1) disorders of pitch, (2) disorders of loudness, and (3) disorders of quality. Van Riper (*6*) discusses voice disorders under the same headings. Curtis (*25*) adds another category, disorders of flexibility. This includes monotonous, inflexible voices with little variation in pitch or loudness. Disorders of quality can be further broken down into such conditions as huskiness or hoarseness, too much or too little or improper nasal resonance, aspirate (whispered) quality, etc.

As we did with problems of articulation we can consider various causes of voice disorders under the general categories of organic and functional. Harrington (*37*) limits his discussion to factors which may commonly cause voice disorders in children. The organic causes he considers include pathological conditions of the larynx, which he feels are quite rare among children, cleft palate, adenoidal obstructions, and removal of adenoids. Under functional causes he includes poor habits incurred by imitation of poor speech models, psychological disturbances, or maladjustments, adolescent voice change, inappropriate pitch as it affects other aspects of voice, and poor breathing habits.

In general, the correction of voice disorders, particularly hoarseness or other disorders which may result from laryngeal pathology, should not be undertaken without a complete medical evaluation which includes a laryngeal examination. If the voice condition does not result from an uncorrectable organic problem it may respond well to training. Generally speech therapy will follow medical or surgical treatment where the condition can be helped by medicine or surgery, although in some instances the various treatments may be conducted simultaneously. Techniques of voice training will likely include auditory training to help the child become aware of the differences between the improper and the proper use of the voice; and practice with material composed largely of vowel sounds. As in the case of articulatory disorders, the therapist should provide the child with the best auditory and visual stimulation possible. Special therapy procedures will likely be utilized depending on the nature of the specific problem. If the voice disorder results from emotional disturbances of any kind, mental hygiene or psychological help may be necessary.

APHASIA

Aphasia is a generic term used to denote various types of inability to deal with symbolic formulation and expression or interpretation. It involves any combination of a number of language disorders rather than specific speech disorders. Special disorders of voice and articulation, however, may appear in connection with the aphasic condition.

Authorities differ in regard to the extent and nature of this condition in children. Stinchfield and Young (*5*) suggest that "true aphasia" is rare in children. Myklebust (*64*) reports on the differential diagnosis of 228 children referred to Children's Hearing and Aphasia Clinic, Northwestern University because of lack of speech development and presumption of faulty hearing acuity. He reports that approximately 30 percent of these children exhibited aphasia. He believes that auditory tests alone are not adequate to differentiate between hearing loss and aphasia. He feels that the differential diagnosis must frequently be done on the basis of clinical observation and evaluation of the child's behavioral syndrome.

Peacher (*67*) feels that, since aphasia in the ordinary sense implies destruction of a *previously existing* social, intellectual, and cultural process already well established, there is ample reason for objecting to its use with children who have not as yet developed speech. He proposes that the terms "sinlingualism" and "cumlingualism" be used for any language condition in children which results from lesions of the central nervous system. Sinlingualism would be used if the child is without speech and cumlingualism would be used for the child who has some sounds or words. Aside from the classical use of the term aphasia to represent destruction of an *already established* language function, one of the problems which has probably contributed a great deal to the differences of opinion regarding the nature and extent of similar problems in children is the similarity of symptoms which seem to exist in problems of brain injury, deafness, mental deficiency, and emotional disturbance. Differential diagnosis of aphasia in children therefore represents a very difficult task. Many speech pathologists refuse to accept a diagnosis of aphasia in a child without the support of neurological findings indicating brain damage. Such an attitude assumes a much greater degree of precision in current neurological tests than Myklebust (*64*) and others would grant. Even in cases where brain damage can be established one must recognize that the problem in the brain-injured child who has not yet developed language is quite different from the problem which exists in the adult whose already established language patterns have been disturbed.

The literature in aphasia has been concerned for the most part with adults. Classification of the various types has been difficult because of the relative lack of pure examples of any proposed subdivision. Weisenburg and McBride (*101*) propose a fourfold classification which forms the basis of their discussion. The four groups are: (1) the *predominantly expressive*, corresponding generally to motor aphasia, with the chief disorders in speech and writing; (2) the *predominantly receptive*, corresponding generally to sensory aphasia, which usually includes word blindness and word deafness: (3) the *expressive-receptive* group, where all language processes are extremely limited; and (4) the *amnesic*, in which the patients have difficulty in evoking such words as names of objects, acts, etc.

Wepmen (*102*) adopted the following classifications: (1) expressive aphasia, (2) receptive aphasia, (3) expressive-receptive aphasia, in which there is approximately an equal distribution of receptive and expressive involvements, (4) global aphasia, in which all language forms are so seriously affected that it is not possible to use one of the preceding categories, (5) agnosia, loss of ability to recognize various objects through any particular sensory channel, (6) apraxia, loss of ability to execute simple voluntary acts.

There appears to be agreement that aphasia is caused by cerebral lesions, but there is disagreement concerning cerebral localization, and in the structural versus the dynamic concept. The latter concept appears to be more widely held than the former. Peacher (*67*) believes that the approach which is based on holistic or organismic concepts is the most commonly accepted. Wepman (*102*) feels that "a more hopeful prognosis can be made for aphasic adults with acceptance of a non-localization viewpoint, in accordance with which recovery follows reintegration of the remaining cortical tissue into a functioning whole."

Among the most commonly used tests for aphasic patients are those developed by Eisenson (*28*), and Halstead and Wepman (*36*). These tests are aimed at determining the nature of the language disorders exhibited.

Eisenson (*28*) feels that language therapy should be started as soon as possible. He believes the sooner therapy is started, the better is the prognosis.

Management of aphasia in adults involves reëducation, capitalizing on as much of the past speech background of the patient as possible. For a detailed discussion of therapy for aphasics the reader is referred to Wepman (*102*).

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Chapter

12

Sensory Defects

INTRODUCTION

AMONG those children often spoken of as "exceptional," one of the larger groups is made up of individuals with physical handicaps. The increased birth rate, progressive advances in medical practice, and newly created interest in conserving human resources have all combined to develop an increased social consciousness about the physically handicapped. Results of this sensitivity have been reflected in augmented special education services, enlarged vocational rehabilitation programs, increased stress on vocational placement, as well as community planning for diagnosis and prevention.

Any one of these might serve as an index to give some idea of the size and scope of the area. Current national statistical estimates suggest how formidable the problem is and indicate the need for more specific data on impaired children. Following Lesser and Hunt (*99*), the number of children under twenty-one years of age with handicapping conditions are: orthopedic defects, approximately one million (of this group cerebral palsy cases numbered 285,000); rheumatic fever or its after effects, about 675,000; epilepsy, roughly 275,000; visual conditions, 7,500,000; and hearing loss, 1,250,000 to 1,500,000 children. Statistics of special education programs in public schools and classes show enrollments in the neighborhood of 497,216 children. If children in residential schools, home-bound pupils, and hospital programs, as well as the socially mal-

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adjusted are included, the total is approximately 600,000. This does emphasize the magnitude of the problem; nevertheless, these figures may be an underestimate in light of the fact ". . . that even among what may be termed the readily accessible handicapped school population fewer than 40 percent in need of the special educational services in this survey are receiving such services" (*158*).

Implicit in the above enumerated diagnostic groups are several important ideas which can serve to orient our perspective. First among these is the simple notion that the basic condition, whether it be congenital, result of a physiological dysfunction, or traumatic, is organic. While anatomical, physiological, and neurological facts are primarily of concern in medical diagnosis and treatment, they have value also in the psychological understanding of the physically handicapped child.

The second important idea is that physical involvement may impose limitations on the child as well as reflect limitations imposed because of socially and culturally defined reactions to him. Barker, et al. (*5*), suggest that these limitations are a reflection of the somatopsychological relation which ". . . is concerned with those variations in physique that affect the psychological situation of a person by influencing the effectiveness of his body as a tool for actions or by serving as a stimulus to himself or others." Their theoretical formulation is a vigorous reminder that status, role, and adjustment for the physically deviant individual are tied in with social value judgments.

Voluminous references exist which portray aspects of this problem, for example, comparative cultural reactions (*65*) and specific attitudes toward individual physical conditions (*1, 7, 173*). Generally it is hard to demonstrate that the clime within which the impaired child lives is one of social acceptance. Public attitudes may appear favorable, but negative and latent hostility is often apparent (*5*). Tenny (*164*) compares the handicapped child's status to that of a member of a minority group: physical differences produce social distance, and segregation along with unfavorable stereotypes are invoked to maintain social distance.

Unquestionably other determinants of the disabled child's adjustment are present. Parental attitudes reflect not only the cultural matrix, but also personal emotional-social adjustment. Although their reaction to deviant physiques is highly idiosyncratic, common reactions may exist. Modes of parental adjustment have been described in many ways and definite constellations abstracted, for example, patterns of objective acceptance, denial, overprotection, and rejection. Emphasis seems to suggest that the mother's attitudes are primary and relatively more important in determining the adjustive behavior of physically impaired children. Even though there may be some relationship between parental handling and behavior seen in the child, undoubtedly other sources contribute to the total personality structure. The stimulus value of the child's physique and his behaving in accordance with this is one of these additional sources. Medical experiences and hospitalization may furthermore become sources of not only behavior responses, but also conceivably account for some similarity in behavior patterns seen in disabled children.

Lawful relationships are expectedly hard to come upon, notwithstanding this, a point of view needs to be adopted relative to the relationship between physically handicapping conditions and adjustment. Barker (*5*) and his associates advanced highly tentative hypotheses which merit consideration and seem to have predictive value:

> When the disabled physique had a seriously limiting, depriving effect both physically and socially, behavior and personality were seriously affected. When the physique as a tool helped to create a moderately limiting and uncertain situation, and as a social stimulus produced a neutral or a protecting and gratifying situation, i.e., when the subject was placed in an overlapping (depriving and gratifying) situation—the consequences for behavior were inhibition, passivity, withdrawal. Finally, when the disabled physique had only protective and rewarding consequences, the result was good social and emotional adjustment.

The variety of physically handicapping conditions share many points of psychological or adjustmental significance, while each has its own specific behavioral problems. In this and the following chapter the discussion is organized around several major sorts of handicap. Disorders of vision and hearing are the concern of this chapter, and a number of neurological and systemic conditions are dealt with in the next one.

VISION

Of all the senses, two—vision and audition—are probably of greater significance in adjustment than any of the others. It is estimated that about 85 percent of our sensory contacts are made through the medium of vision. Our concern is to inquire into the part played by vision in psychological problems.

The Eye

Structurally the eyeball, Figure 9, is almost a sphere partially filled with a gelatinous substance, the *vitreous humor*, which serves to maintain its shape. On all sides skull bones protect it. Additional protection comes from constant bathing by tears of the *conjunctiva*, the delicate membrane that lines the eyelid and covers the eyeball, and reflexive action of the eyelids.

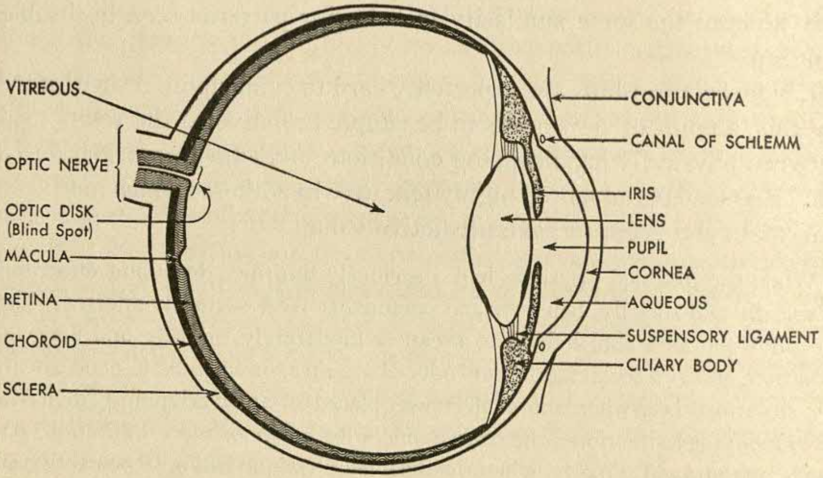


FIGURE 9. Cross Section of the Human Eye.

Internal structure. Viewing the posterior half of the eyeball, one can readily see three walls: the *sclera*, a tough fibrous tissue; the *choroid*, a vascular layer containing vessels supplying the eye with blood as well as pigment which makes the wall of the eye impervious to light and thus prevents blurring or multiplication of images; and lastly, the *retina*, the inner coat consisting of sensitive receptor cells with their accompanying nerve cells. The receptors, rods and cones, are specialized cells sensitive to light and connected by intermediary neurones and synapses with the fibers of the optic nerve. The region of clearest vision in the eye is the *fovea* or *macula lutea* which is relatively devoid of blood vessels and connective tissues and packed tightly with cones. The point of exit of the optic nerve is the *blind spot* or *optic disc.*

The anterior or forward third of the eyeball can be thought of as a modification of the three mentioned layers. The *sclera* becomes trans-parent to form the *cornea*. The inner or middle layer forms the pigmented *iris*, with its central opening, the *pupil*, and the muscle-containing structure, the *ciliary body*. Smooth muscle fibers arranged circularly and radially in the iris regulate light by their contraction and dilation. From the ciliary body is suspended and held in place by *suspensory ligaments*, the crystalline *lens*. The inner layer or retina stops just short of the lens attachment.

Aside from the structures mentioned the interior of the eye has between the iris and cornea the *aqueous humor*, a watery fluid, and in back of the lens, the *vitreous humor*.

Eye movements. Attached at one end to the sclera of each eye and at the other end to the bony wall of the socket, are six extrinsic muscles which control movements of that eyeball. These six muscles are: the *external* and *internal recti*, moving the eyeball temporally and nasally respectively; the *superior* and *inferior recti*, moving the eyeball upward and downward respectively; and the *superior* and *inferior oblique* muscles, moving the eyeball downward and outward and upward and outward, respectively. The innervation of the muscles of both eyes is such that normally the eyes move together.

Accommodation. The operation of the various parts of the eye are all directed to the one end of focusing light rays in the most accurate way upon the sensitive retina and more particularly on its most sensitive region, the macula. Light rays, passing from one medium to another, are always bent or refracted to some extent. In the eye the bending of the rays is effected to a large extent by the surface of the cornea rather than by the lens. The importance of the lens in this process lies in the fact that it can change the focusing power of the eye by changing its curvature. This adjustment is called *accommodation*.

Two kinds of monocular accommodation control the admission and the course of light in the eye. With increase in the intensity of available light, or when clear definition is necessary, as in close vision, the sphincter portion of the iris muscle contracts and makes the iris smaller; with decrease in the light intensity, the muscle relaxes and increases the pupil size. Control of the focus of light rays depends upon the process of accommodation. When light rays from distant objects (twenty feet or more) reach the eye they are parallel and require less bending to converge on the retina. In this state, the suspensory membrane is taut and the lens is flattened. For near vision the rays which reach the eye are diverging. To correct for this, the ciliary muscle contracts and permits the ligaments supporting the lens to slacken. The elastic lens in this situation bulges more in the anteroposterior diameter, thus becoming convex to a degree sufficient to correct the initial divergence of the light rays.

Binocular vision may require still another type of accommodation. For distant vision (over twenty feet), the lines of sight of the two eyes are parallel. In order to see objects less than twenty feet from the eyes clearly, it is necessary that the two eyes converge or turn toward each other by the coördinated action of the two internal recti. This convergence serves to keep the light rays entering the two eyes focused on corresponding points of the two retinae.

Visual acuity and measurement. The chief purpose of the eye is to see and the chief concern is how well this is done. This efficiency of the eye is called visual acuity and means "acuteness" of vision or optimum visual discrimination.

As a matter of interest and because such facts are essential to a comprehensive understanding of visual impairment, the developmental aspects of vision can be profitably reviewed in approaching the topic of visual acuity. Prenatal analysis suggest that six months prior to birth the eyes move with increasing coördination. As Gesell (*57*) states, vision and visual perceptions are really visual-motor perceptions. "The retina receives impressions, but muscles, fundamental and accessory, achieve the adjustments to position, distance, size, and form; the cortex organizes the experience. The blind infant cannot attain even the most rudimentary spatial orientation until he can bring his muscular system to bear upon the same problems of position, distance, size, and form." Infant norms (*34*) show that by the second month inspection of the environment takes place, and moving objects can be followed in the horizontal and vertical planes. By the end of twelve weeks objects can be followed in a circle and sometimes before the end of twenty weeks even a small pellet can be detected. Quibor's (*138*) investigations indicate that normal vision or discrimination is not present until sometime between the second to third years of life.

Widely known devices for measuring visual acuity include the Snellen test chart (*150*), Keystone visual survey tests (*91*), Massachusetts vision test (*81*), and the Eames eye test (*44*). Designed in 1862, the Snellen chart has become a standard measure for visual acuity. There are two types of charts: the Snellen letter chart and the Snellen symbol E chart for illiterates, both reproduced in miniature in Figure 10. Each chart has rows of letters designed to be seen at a different distance, starting at 200 feet and going down to 10 feet.

The Snellen E Test is perhaps the more common and simplest measure in use. It serves to detect gross visual disturbances, particularly those related to nearsightedness and somewhat for those related to farsightedness. Standard distance is conventionally taken at six meters, or twenty feet. Acuity of vision is expressed as a fraction, the numerator of which is the distance of the chart from the eyes (preferably and conventionally twenty feet). The denominator is the distance the line of smallest letters

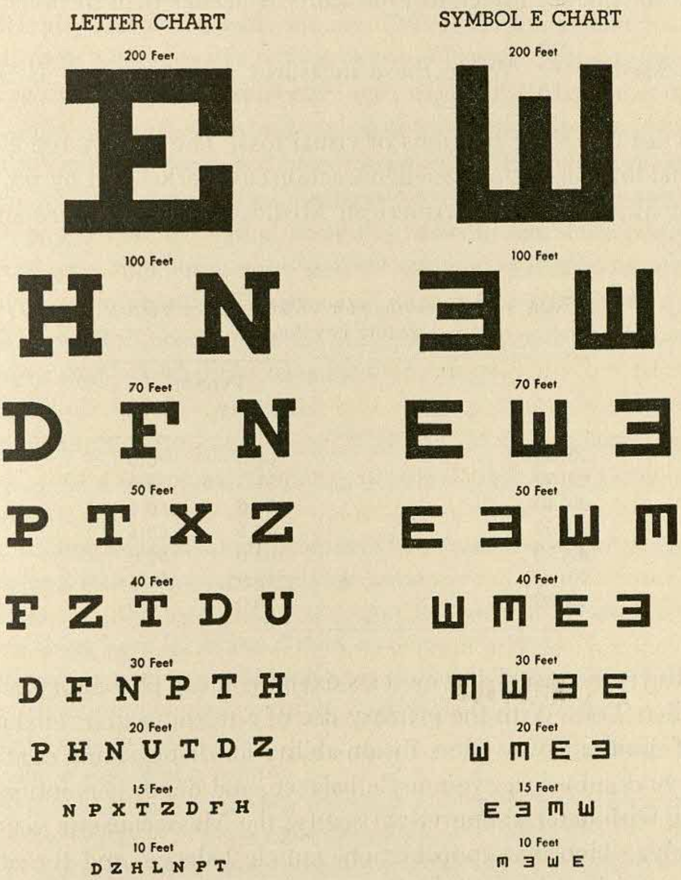


FIGURE 10. Snellen Visual Acuity Test Charts Drawn According to the Snellen Scale. (Courtesy National Society for the Prevention of Blindness.)

should be read by the normal eye. Thus normal sight is expressed as $\frac{20}{20}$; if the child can read only the letters for thirty feet the acuity is $\frac{20}{30}$; if he can read the line for fifteen feet his acuity is keener than the average and is expressed by $\frac{20}{15}$. While these measures are expressed as fractions they do not represent fractions of visual loss. The percentage efficiency and visual loss for various Snellen fractions as worked out by the section on Ophthalmology of the American Medical Association are shown in Table 43.

TABLE 43. Percentage for Visual Loss for Various Acuity Fractions

	Percent	
	Efficiency	Loss
20/20	100.0	0.0
20/30	91.5	8.5
20/40	83.6	16.4
20/50	76.5	23.5
20/70	64.0	36.0
20/100	48.9	51.1
20/200	20.0	80.0

The Keystone visual survey tests examine more phases of vision than the Snellen Test. With the primary use of a telebinocular, evaluation is made of simultaneous vision, fusion ability for distance and reading distance, eye dominance, eye muscle balance, and depth perception.

Along with determining visual acuity, the Massachusetts vision tests also analyze binocular coördination, muscle balance, and the effects of tension on vision. As with the Keystone, optical apparatus is used in the testing. This includes both lens and a Maddox rod; the latter for establishing significant deviations in oculomotor control and balance.

The Eames test not only covers the status of visual acuity, but also visual coördination, fusion ability, eye dominance, and astigmatism. Lens and the stereoscope are utilized in some of these tests.

The comparative utility of the Snellen, Keystone, and Massachusetts tests for vision screening have been assessed by Shaffer (*145*). Studying the ocular functions of 203 pupils from first through the eleventh grades, using the three screening procedures and ophthalmological examinations, Shaffer concluded that the Snellen Test was the most single reliable screening device. Foote and Crane (*50*) similarly corroborate the effectiveness of the Snellen Test. It was particularly recommended for younger children because it referred fewer children, produced fewer overreferrals, and was simple to use. Other screening devices, such as the Keystone telebinocular, the American Optical Sight-screener, and the Bausch and Lomb Ortho-Rater, were suggested as more appropriate for the upper grades, sixth and up, since they resulted in a higher proportion of correct referrals. Their higher proportion of incorrect referrals were attributed to test administration rather than inherent faults of the instrument, *per se*. Visual screening devices are used primarily to determine what children are in need of further ophthalmological treatment. Obviously visual difficulties are evident apart from eye examinations and are often observed in the behavior of the individual. Symptoms suggesting that visual difficulties exist are (*68*):

Behavior signs:

Walks with extreme caution, looking closely or feeling with the foot for a step up or a step down or for small obstructions; trips or stumbles frequently.

Holds reading material or other types of fine visual work close to eyes or at a greater distance from the eyes than is normal.

Attempts to brush away blur; rubs eyes frequently; frowns; distorts face when using eyes for either distant work or close work.

Shuts or covers one eye; tilts head to one side or thrusts it forward. Fails to see distant objects readily visible to others.

Is unduly sensitive to light.

Is unable to distinguish colors.

Is unable to estimate accurately locations of objects, hence frequently runs into them or fails to place object properly.

Fails to see objects not directly within the line of vision, which are clearly visible to the average person, while the eyes are fixed looking straight ahead.

Appearance of eyes:

Red-rimmed, crusted, or swollen eyelids.

Frequent sties.

Watery or red.

Crossed or not functioning together.

Discharge of pus.

Bloodshot.

Complaints due to use of eyes:

- Dizziness.
- Headache.
- Nausea.
- Pain in the eyes.
- Blurring of letters or objects.
- Double vision.
- Burning or itching lids.

Loss of visual acuity may be due to a number of causes: refractive errors, opacities of the cornea or lens, pathology of the retina, defects of muscle functions, or defects in the optic nerve. Kerby's (*87*) survey of special classes for the partially seeing gives some idea of the relative importance of various causes for visual loss as shown in Table 44.

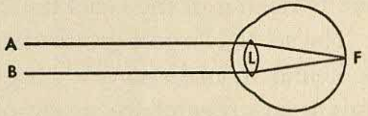
TABLE 44. Cause of Defective Vision Among Partially Seeing Pupils (*87*)[a]

Cause	Percent of Total	Totals by Cause Boys	Girls
Developmental anomalies of structure	21.5	893	682
Cataract and/or dislocated lens	11.3	476	346
Albinism	3.7	140	134
Other (specify)	4.3	175	142
Multiple anomalies	2.2	102	60
Diseases or defects of eye due to			
Infectious diseases	3.4	123	124
Injury	1.5	83	25
Other (specify)	0.4	14	19
Cause(s) unknown	4.9	218	139
Refractive errors	48.7	1,939	1,623
Myopia (incl. myopic and mixed astigmatism)	35.5	1,340	1,259
Hyperopia (incl. hyperopic astigmatism)	12.8	580	353
Type not known	0.4	19	11
Defects of muscle function	18.2	848	482
Squint (incl. strabismus and amblyopia ex anopsia)	8.8	395	251
Nystagmus	9.4	453	231
Cause undetermined	1.4	61	37
Number		4,179	3,131
Percent	100.0	57.2	42.8

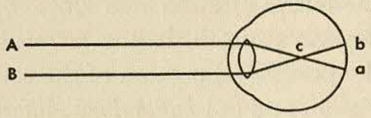
[a] Data include children in 600 sight-saving classes in 37 states, the District of Columbia, and Hawaii.

The most frequent reason for defective vision are refractive errors, which constituted nearly half of the cases reported in Table 44. Such errors are due to improper focusing of light rays and as a result a clear image is not formed upon the retina. As diagrammed in Figure 11, the rays focus in front of the retina in *myopia* and behind it in *hyperopia*. The normal eye is *emmetropic*, that is, with relaxed accommodation the light rays are focused on the retina and vision is clear.

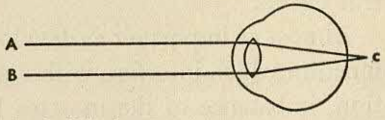
Myopia, commonly called nearsightedness, accounted for more than one-third of all the cases reported by Kerby. Certain conditions of the cornea or lens may be responsible for myopia, but usually the condition exists because the eyeball is too long, and, as a consequence, rays are brought to a focus in front of the retina. Refractive correction is made by concave lens. This condition is seldom congenital; but says May (*111*), ". . . there is a strong hereditary tendency, it commences at an early age and often progresses; . . . this is known as progressive myopia. These are the cases which may be accompanied by destructive changes in the choroid and other parts of the eye. . . ." In hyperopia the refraction of the relaxed lens brings rays to focus behind the retina. This means that the far-sighted eye must accommodate for distant objects as well as near vision. In the hyperopic eye the ciliary muscle is constantly active, too much near vision taxes the muscular power and results in fatigue. Compensation for hyperopia is made through a convex lens which serves to bring visual images into focus on the retina of the foreshortened eye. The normal infant eye is hyperopic; but with growth the anteroposterior diameter lengthens until the eye is emmetropic, and under certain conditions it may be myopic. Unlike myopia, hyperopia is never progressive.



Emmetropia–normal



Myopia–nearsightedness



Hyperopia–farsightedness

FIGURE 11. Diagram of Light Rays in Refractive Errors.

The third type of refractive error is *astigmatism*, a condition caused by defects in the lens or cornea. Astigmatism results in a difference in refraction in the meridians of the eye. Thus some rays focus before, some behind, and some on the retina. As shown in Table 44, astigmatism may appear with refractive errors of the whole eyeball, or be associated only with hyperopia or myopia.

Of equal seriousness and associated with refractive errors is *astheno-*

pia or eyestrain, a term for the symptoms related to fatigue of the ciliary muscle or the extrinisic muscles of the eye. Signs of eyestrain include pain in or around the eyes, headache, double vision, dizziness, nausea, and twitching of the facial muscles or eyelids.

The second largest group of causes for visual loss are related to developmental anomalies or pathology of various parts of the eye. These conditions in order of frequency of occurrence are: (1) cataracts, mostly congenital and caused by bits of opaque embryonic tissue remaining in the lens, (2) dislocated lens, (3) albinism, lack of pigment, (4) retinal degeneration, including *retinitis pigmentosa*—a degenerative change in the peripheral portion of the retina which gradually reduces the field of vision, and (5) *bupthalmos*, infantile glaucoma which increases pressure within the eyeball, enlarging the eye and distorting peripheral and central vision.

Almost as important as developmental anomalies are defects in muscle function which interfere with visual adjustment. Defects of muscle function, imbalance of the muscles holding the eyeball in place, are about equally divided between *strabismus* and *nystagmus*. Strabismus or squint (cross-eyes), is a deviation of the visual axis of one eye from its correct position of fixation. Apparent deviations and the direction of deviation are indicated by terms such as *esotropia*, a frank convergent strabismus or *exotropia*, a frank divergent strabismus. Latent deviations are thought of as the *phorias*. Thus *esophoria* indicates a tendency to converge, and *exophoria* a tendency to diverge. Strabismus may develop either because of paralysis of the eye musculature or because of an unequal refractive power of the two eyes. The majority of cases occur during the first five years of life when binocular reflexes are also in the process of developing. Because of strabismus, accommodation important to binocular vision and fusion may not take place. Instead (1) several images reach the brain and *diplopia*, double vision, may result, or (2) to avoid diplopia suppression of the image in the deviating eye or nonfixating eye may develop. The latter in turn can result in *amblyopia ex anopsia*, defective vision from disuse, in the deviating eye as well as an inability to use both eyes together. Strabismus has also been associated with atypical eye-hand patterns and motor awkwardness (*56*). This may be a reflection of the visual defect itself or some common organic involvement and impairment.

Nystagmus is an involuntary oscillation or trembling or jerking movement of the eyeball which may be lateral, vertical, rotary, or mixed. May (*111*) says that most cases start in infancy when, because of a reduction in visual acuity, the child does not learn to fixate properly. Apparently infantile cases have a guarded prognosis, though the condition sometimes becomes less marked with advance in age; correction of refractive errors may help.

Percentagewise defective vision because of infectious diseases or injury is relatively low. Data are available from public school records (*89*), which show that eye accident rates were only 2.9 per 1000 for the kindergarten through third grade; 3.1 for grades four through six; and 3.4 for junior high school, grades seven through nine. The rate drops sharply to 1.4 in the senior high school, grades tenth through the twelfth.

Visual Impairment

Partially seeing. The large population of children with visual impairments necessitates some classification to facilitate handling. All types of visual impairments are not of the same degree of severity nor do they necessarily have the same psychological significance. Hathaway and Lowenfeld (*69*) classify visually handicapped children into three primary groups:

> Group 1. Children having deviations from generally accepted visual norms that are amenable to medical treatment or that can be so compensated for by optical aids that they may be included, educationally and vocationally, in the group of the normally seeing.
>
> Group 2. Children who have such serious visual impairment that even with medical treatment and optical aids they cannot use advantageously the educational media provided for the normally seeing, yet have too much sight to make appropriate use of the media provided for the blind.
>
> Group 3. Children who, after receiving all needed medical treatment and optical assistance, are educationally and vocationally blind.

For our purposes Groups 2 and 3 can aptly be called physically handicapped. Promulgated standards for placement in Group 2 are: "(1) Children having visual acuity between $\frac{20}{70}$ and $\frac{20}{200}$ in the better eye after all medical and optical help has been provided; (2) children with serious, progressive eye difficulties; (3) children suffering from diseases of the eye or diseases of the body that seriously affect vision." Those who fall in this group are variously described as partially seeing, or in need of sight-saving education.

Blind. At first pause, a definition of blindness may appear superfluous especially when considering the infant or preschool child. Pragmatic reasons have required that such a concept be evolved to assist in determining eligibility for things like public assistance and education. In 1943, the Subcommittee on Ophthalmology of the National Research Council approved this definition: "Central visual acuity with correcting glasses of more than $\frac{20}{200}$, but less than $\frac{20}{40}$, if a field defect existed in which the peripheral field had contracted to such an extent that the widest diameter of the visual field subtended an angular distance no greater than 20 degrees" (*62*).

Projected figures suggested that the number of preschool blind was expected to exceed 6000 by the end of 1953. This also meant that approximately one of 4000 born had become blind before his seventh birthday. Kerby (*90*) in a sample of 2809 preschool blind found that most of the blindness occurred during fetal life or the first postnatal year. Retrolental fibroplasia, a condition resulting in the formation of fibrous tissue behind the lens, caused nearly half of the blindness. Comparative figures for 1943 and 1950 showed an increase of roughly 50 percent in the preschool blind, which may be related to both the rising birthrate for the period and the rising incidence of retrolental fibroplasia. This may have represented an artificial increase in that the cause of retrolental fibroplasia, excessive exposure of premature infants to a very high oxygen atmosphere, has been discovered and such epidemics need not occur (*80*).

In surveying the total school age group, estimated to be about 28 million, Kerby (*88*) found 5565 pupils who were considered Braille students, that is, educated as blind in residential or public school classes. Rate of blindness for the school age group was computed as one in 5000. More intensive analysis of a sample of 4248 Braille students showed that the age of onset in most cases was under five years and that in over 60 percent of the cases the child was blind at birth.

Where the cause of blindness was determined, Table 45, heredity was strikingly important. In fact, ophthalmologists have long been aware of the genetic factor in ocular abnormalities. Although relationships have been established between congenital blindness and German measles and prematurity, lack of basic knowledge relative to the etiology of congenital blindness is responsible for the "Cause not specified" group.

TABLE 45. Causes of Blindness Among 4248 Braille-Reading Students (Kerby, [*88*])

Etiology	Percent
Infectious diseases	13.8
Ophthalmia neonatorum	5.7
Syphilis	2.8
Meningitis	0.8
Measles	1.0
Tuberculosis	0.4
Septicemia	0.4
Other and not specified	2.7
Injuries	7.3
Play or sport	4.7
Birth injuries	1.2
Traffic and transportation	0.4
Other and not specified	1.0
Poisonings	0.1
Tumors	4.6
General diseases	1.5
Prenatal origin	64.1
Hereditary (established or presumed)	15.6
Cause not specified	48.5
Etiology undetermined or not specified	8.6

Infectious diseases and injuries are tending to decrease as causes of blindness. Boys not only seem prone to more severe visual handicaps, but the injury rates are higher among boys (*88*). Figures on the incidence of blindness cannot be left without stating that the prevalence rate of blindness and number of blind people are increasing.

VISUAL IMPAIRMENT AND PSYCHOLOGICAL CHARACTERISTICS

Early Growth and Development

Partially seeing. When appropriate data are available the ensuing discussion shall deal with the partially seeing first and then with the blind. As an overview, just numbers of studies or mere lack of studies, indicate that virtually nothing is known about the psychological development of the partially seeing. Limited research, descriptive studies, and observations have, on the other hand, contributed toward an appreciation of the implications of blindness.

The blind. Blindness, whether it is congenital or neonatal, makes it difficult to assess validity of the developmental process. Gesell (*55*) reporting on the early growth of a case of *congenital anophthalmos*, absence of eyes, concluded that without specific training the basic patterns of body posture, manipulation, locomotion, exploration, and adaptive behavior took progressive form. In accordance with his conceptual scheme, this established the fundamental role of maturation in organization. Mental potentialities were presumed to be normal in this rare medical anomaly, but altered by the blindness. Wilson and Halverson (*175*) reached a somewhat opposite conclusion in their fairly detailed study of a two-year-old blind boy. By means of the Gesell Schedules, the Cattell Infant Intelligence Scale, and the Vineland Social Maturity Scale, they concluded that retardation was greatest in the motor and adaptive areas requiring adjustments to the physical environment and least in language. Blindness was presumed to be a handicap not only because it decreased manipulatory activity, but also because it was accompanied by lack of initiative and spontaneity. Along with these ideas are those of Mikell (*118*) who observes that the blind preschool child has his own unique pattern of growth, similar training problems as the normal child in the areas of walking, talking, motor coördination, and elimination, but that it takes longer for the blind to progress because ear-hand has substituted for eye-hand coördination.

Measurements of general behavioral development in terms of self-help, self-direction, locomotion, occupation, communication, and socialization have been pursued with the blind child by means of the Maxfield-Fjeld Adaptation of the Vineland Social Maturity Scale (*110*). Although the results are conflicting and confusing because of the methodological problem, Barker (*5*) in analyzing all the data states that the social quotient on the regular Vineland Scale is probably between 65 and 75.

Behavior patterns referred to as "blindisms" have been noticed among blind children and are presumed to be associated with a lack of stimulation. Cutsforth (*40*) defines these as acts of automatic self-stimulation which may take many forms. "Tactual stimulation takes the form of thrusting the fingers into the eyes, nose, or mouth, or of manipulating appendages such as ears, nose, lips, or locks of hair. Kinaesthetic stimulation is produced through bodily swaying, rolling or tilting the head, arm motion and shoulder shrugs, and exaggerated genuflections." Clinical experience suggests that these may have a high relationship to emotional disturbances or mental retardation, especially if they persist into the childhood period.

Intelligence

It is evident that the whole interactional setting is changed for visually defective persons, and they are forced to make their sensory contacts with the environment through different sense media; they are unquestionably at a disadvantage in a world primarily organized for the seeing. Lowenfeld (*105*) contends that blindness imposes limitation on the cognitive functions and because of these differences may exist between the seeing child and the blind child. These differences emerge in the perceptual field and are related to limitation "(1) in the range and variety of experiences; (2) in the ability to get about; and (3) in the control of the environment and the self in relation to it." Obviously such restrictions in experiences have implications for the intellectual development and educational achievement of the visually impaired child.

Partially seeing. Objective studies on the intelligence of the partially sighted are practically nonexistent. In fact, current information does not go beyond that published by Meyers (*115*) in 1930. He gathered reports from sight-saving teachers on the intellectual ability of their pupils. Meyers requested an intelligence quotient if a "psychological test" had been given; if none had been administered, the teacher was to express her own judgment of the pupil's ability. After his report was written, additional data were secured from Cleveland sight-saving classes. The three sets of data are reported in Table 46. Meyers comments that the low values shown for the 709 pupils might mean that some were obtained from group tests which presumably would penalize the visually impaired. The Cleveland data showed a more nearly normal distribution than either of the others, but even here there is a slight skewness to the right, that is, the lower scores are more frequent. Contrasted with these results are the teachers' judgments, which are skewed to the left. If all three sets of data are combined, the distribution still appears skewed a little to the right, but the percentage of average children is reduced, and both the above average as well as the below-average groups are increased. The variations can be readily seen by comparing any percentage column with the theoretical distribution expected for the normal population. From these results it is evident that visually defective children tend to be a little below average in test performance, and consequently, that

TABLE 46. Intelligence of Visually Defective Children
(After Meyers [*115*])

I.Q.	709 Pupils General		261 Pupils Cleveland		Total		Teacher's Judgment			Combined		Theoret-ical
	No.	Percent	No.	Percent	No.	Percent	Class	No.	Percent	No.	Percent	
Below 70	93	13.1	1	0.4	94	9.7	deficient	109	5.5	372	12.6	7
70–80	146	20.6	23	8.8	169	17.4						
80–90	179	25.2	66	25.3	245	25.3	poor	282	14.2	527	17.8	13
90–110	224	31.6	149	57.1	373	38.6	fair	655	32.9	1028	34.8	60
110–120	45	6.3	18	6.9	63	6.5	good	716	36.1	779	26.4	13
120–140	22	3.1	4	1.5	26	2.7	superior	224	11.3	250	8.4	7
Above 140	0	0	0									
Total	709	100.0	261	100.0	970			1986	100.0	2956	100.0	

one can expect normal or better intelligence in a very slightly lower proportion of visually defective children than in seeing children. This may be due to a number of factors among which are a real lack of ability required on the tests, lack of experience, and the possibility that available tests too severely penalize the visually impaired child.

Blind. In light of contemporary evidence that demonstrates the influence of many variables on intelligence, relatively few generalizations can be made about the intellectual status of blind children without taking into account such factors as age of onset of blindness and the effects of limited social and environmental experiences.

Hayes (70) has pioneered in the field of intellectual and educational measurement of the blind, and the most adequate data for comparison of the blind with other groups have been his work. Contemporary evidence is based upon results compiled from seventeen residential schools for the blind, using the 1930 Hayes-Binet Intelligence Test shown in Table 47.

TABLE 47. Hayes-Binet Intelligence Test Scores in 17 Residential Schools for the Blind
(After Hayes [70])

School	Number Tested	I.Q.'s Obtained, Mean	Pupils with I.Q. of 120 and Above, Percent	Pupils with I.Q. of 70 and Below, Percent
1	105	108.1	7.6	5.7
2	42	105.95	11.9	8.
3	152	105.8	10.	4.
4	93	105.5	13.9	4.3
5	207	105.1	14.	10.
6	108	104.9	19.	4.8
7	149	99.5	13.4	8.7
8	239	99.5	12.5	7.5
9	220	98.77	10.4	11.8
10	163	98.7	6.	9.8
11	135	97.87	7.4	5.9
12	111	97.64	11.7	10.
13	127	95.2	17.3	14.9
14	75	95.2	6.7	9.3
15	270	93.7	4.8	8.9
16	90	92.5	4.4	16.6
17	86	92.	8.	19.
Total	2,372		10.3	9.2

Data based upon the Interim Hayes-Binet Intelligence Test (71) which is an adaptation of the Terman-Merrill revision of the Binet Tests completed in 1937, are presented in Table 48.

TABLE 48. Distribution of Interim Hayes-Binet I.Q.'s at the Perkins Institution (After Hayes [*71*])

I.Q.	Classification	Perkins Students, Percent	Terman, Percent
138 and over	very superior	4.8	2.2
126–137	superior	13.	6.7
116–125	high average	11.8	16.1
92–115	average	34.	50.0
80–91	dull normal	20.6	16.1
71–79	borderline	7.1	6.7
70 and below	mental defective	8.7	2.2

Mean I.Q. = 102.7; S.D. = 0.23. $\mathcal{N}$ = 482.

Likewise Table 49 contains the results based upon six verbal subtests of the Wechsler-Bellevue Intelligence Scale (*71*).

TABLE 49. Distribution of Wechsler-Bellevue Verbal I.Q.'s at the Perkins Institution (After Hayes [*71*])

I.Q.	Classification	Perkins, Percent of 324 Cases	Wechsler, Percent
128 and over	very superior	5.6	2.2
120–127	superior	9.3	6.7
111–119	high average	20.2	16.1
91–110	average	43.5	50.
79–90	dull normal	12.7	16.1
68–78	borderline	6.5	6.7
67 and below	mental defective	2.2	2.2

Mean I.Q. = 103; S.D. = 16.74.

From the three sets of results it appears that blind children show smaller percents in the middle ranges of intelligence, but higher percents than the seeing at both the superior and inferior levels. High test-retest reliability coefficients between the 1930 Hayes-Binet test, the 1942 Interim Hayes-Binet tests, and the Wechsler-Bellevue Adult Intelligence tests have been obtained, suggesting that the three scales were tapping similar mental abilities. Representative correlations are: (1) between the Interim M.A. and the Wechsler weighted score, without digits, a correlation of +0.90, based upon 197 cases, and (2) between the 1930 Hayes-Binet and the Wechsler I.Q., without vocabulary, a correlation of +0.85, based upon 116 cases. Hayes has noted a regular increase in score (I.Q.), reflecting both overall mental development and selection, with increases in age and grade level.

For 68 pupils tested at least five times with the 1930 Hayes-Binet a "very satisfactory 'constancy of the I.Q.' " was noted. Although scores tended to be generally consistent from age to age, increases in measured intelligence have been reported. These were attributed to the stimulation of the more favorable school environment as opposed to retardation associated with neglect, lack of opportunity, or additional defects such as deafness. Even though pupils testing high tended to do well, pupils testing low might reflect this latter type of retardation rather than native mental deficiency. Komisar and MacDonnell (*95*) have demonstrated that significant gains in intelligence quotients by blind students do take place after at least one year's school attendance. To account for the increases which appeared in all I.Q. categories, they posited limited social, emotional, and learning experiences. These were not only recognized as hindering development, but further made extremely questionable predictions of future intellectual status.

The age at which sight is lost has not been significantly related to test performance (*70*). More recently Levine and Blackburn (*101*) with a group of newly blinded adult soldiers, ages 18–49, concluded on the basis of Wechsler-Bellevue scores that blindness does not affect the basic intellectual functions when it occurs in adulthood.

Educational Achievement

Partially seeing. Reports on the educational achievement and academic success of this group are practically nonexistent, at least as far as the current period goes. More as a matter of completion, and with question about the reliability and validity of the conclusions currently, Louttit's (*104*) summary is applicable. Based upon Meyers' (*115*) study published in 1930 it was concluded that about a third of the visually handicapped children were overage for their grade, and that the retardation of children with partial vision in the regular grades is in large measure the result of inadequate teaching methods.

Blind. In spite of advancing methods of teaching, the fact that most learning experience is tactual and kinesthetic, devoid of totality as well as reality almost supports the *ad hoc* assumption of educational retardation among the blind. From March, 1829, the founding of "The New

England Asylum for the Blind," now known as the Perkins Institution and Massachusetts School for the Blind, until the close of the nineteenth century the residential school was the primary means of blind child instruction. Establishment of the first public school class for blind children, the Braille class, in Chicago in 1900 reflected the changing philosophy with regard to blind education. The day school plan made the blind child an integral part of his public school community and supplemented instruction with special methods as necessary. Growth of this movement is reflected in the fact that in 1947–1948 about 414 blind children were enrolled in public elementary special schools and classes and approximately 658 in the period 1952–1953; an increase of almost 59 percent (*158*). A similar percent increase was noted for the secondary level.

By no means has opinion been unanimous in this area. Some are unequivocally in favor of residential schools. The State of New Jersey represents a case analysis program which selects the educational facility likely to meet the blind child's need. This may vary from placement in Braille or sight-saving classes for the mentally and physically normal to bedside instruction for home cases or out-of-state residential placement when required. The Oregon Plan (*85*) utilizes residential placement as a type of diagnostic center. Children are returned to local schools as soon as their educational adjustment within the institution permits. Recent figures suggest a greater trend toward combining both the residential and day school philosophy. Questionnaires returned from most residential schools (*27*) show that half of the schools retain their pupils through high school, one-third send some pupils to public high school, and one-sixth send out all pupils beyond a certain grade.

Again evidence on the educational achievement is mainly limited to that presented by Hayes (*70*) in his *Contributions to a Psychology of Blindness*. Experimental conclusions do not substantiate the sensory superiority of the blind and consequently indicate that nothing unusual is brought to the learning situation. Blind children do begin school relatively late. They read slower and less widely; in fact, by the end of the elementary years blind pupils read only one-third as efficiently as the normal fifth grader. No appreciable advance in reading skill has been demonstrated to occur during the high school years. Such limited reading experience can be reflected in their acquisition of language and inferiority in understanding words. Hayes states that vocabulary and language comprehension retardation is about equal to the educational retardation appearing in the earlier grades, but this becomes progressively greater. Increased years of visual experience, that is, whether one was congenitally blind or adventitiously blind, did not seem to mean a higher level of achievement. Dependence of academic achievement on reading skill and the necessity of vision in reading presumably underlie the educational retardation found among visually handicapped children.

Personality

Partially seeing. Judging from the paucity of reports, the study of personality development and adjustment among those with partial sight is a fertile field for psychological research. The visually handicapped might well be expected to present the same sort of personality and conduct difficulties as are found among seeing children, plus qualitatively and quantitatively different ones that are more or less directly related to the poor vision. As yet, however, no intensive investigations of visually handicapped children in sight-saving classes or regular classes exist. Administratively, such studies would have value, even if only to better understand the effects of competition with other visually handicapped children, or with seeing children.

Blind. Even though social attitudes toward the blind are not unfavorable (*3, 35, 142*), social stereotyping conditions reactions toward the blind and influences their own self-concept and personality adjustment. In spite of obvious adverse elements, Barker (*5*) comments on the slight personality disturbance that seems to accompany such an extreme sort of deprivation. Diamond and Ross (*43*) on an adult group, blinded soldiers, concluded that blindness *per se* does not appear capable of producing abnormal mental and emotional states. The lack of a one-to-one relationship between blindness and personality structure seems fairly well confirmed and further serves to affirm that experiential background is important in the formation of personality structure.

Among the conditioners of response patterns are parental attitudes. Sommers (*151*) portrays the implications of blindness for parents and relates these to distinct motivations about the handicap of their children. By means of interviews it was evident

> . . . that the majority of mothers studied experienced frustrations or feelings of conflict because of having given birth to a blind child. Persistent feelings of frustration on the part of parents seemed to arise from a sense of unfulfillment resulting from the fact that the birth of a child with a handicap as apparent as blindness failed to meet the concept of the kind of child which the mother had

expected; while the contradiction between maternal devotion and irrepressible sense of repulsion caused by the blindness seemed to create feelings of irreconcilable conflict. These frustrations and feelings of conflict were sometimes accentuated by a sense of guilt which frequently was associated with self-consciousness or a sense of inferiority.

Parental modes of adjustment varied from genuine acceptance, denial of the emotional and physical significance, overprotection, to disguised and overt rejection. Adjustive reactions of wholesome compensatory behavior and hypercompensatory behavior, denial, defensive reactions, withdrawing tendencies, and outright nonadjustive reactions were noted to be closely related to the parental reactions. Effects of parental overprotection were more pernicious than straightforward rejection. A summary conclusion illustrates the somatopsychological problem operative in adolescent blind personality:

> It was clearly evident from the data at hand that the blind individuals tended to make a wholesome personal and social adjustment whenever their early life afforded them a reasonable amount of economic, physical and emotional security, whenever they were able to face their handicap in an objective way. On the other hand, blind children who were neglected and thwarted, whose childhood was deprived of a normal and wholesome environment, developed unfavorable or abnormal traits of personality and were, in almost all cases, unable to accept their handicap.

Other approaches evaluating the adjustment of the blind have utilized both personality measures, scales or tests, as well as experimental comparisons. With respect to the objective studies, it can be said initially they often possess serious methodological weaknesses. The findings are quite contradictory and represented on one end of the continuum by investigations indicating maladjustment. Brown (*24*) found more maladjustment on the Clark Revision of the Thurstone Personality Schedule with the blind, and more so with the blind female, than for a sighted group. It is questionable whether his subjects, high school students, were comparable. Using 84 high school students with $\frac{20}{200}$ corrected vision or less from blind schools matched with sighted controls for age, sex, socioeconomic status, residence, and speech training, Brieland (*20*, *21*) reports significantly less satisfactory adjustment for the blind on health, social, and emotional factors as measured by the Bell Adjustment Inventory. The relationship between personality scores and speech ratings was insignificant. Bauman (*8*) with an older group of blind, other handicapped, and nonhandicapped individuals, concluded from responses to an Emotional Factors Inventory that the blind were more maladjusted and that the ". . . personality pattern of the handicapped groups is based largely on the social and economic consequences of their handicap rather than upon the direct impact of the physical defect upon the personality. . . ."

The more favorable end of the continuum is represented by the studies of Brown (*25*) and Cross (*39*). Brown reports no difference between the scores of 218 blind persons, 16 to 22 years of age, and those of 359 seeing high school seniors on the Kohlstedt Test of Introversion-Extroversion. Cross with an unabridged Braille edition of the Minnesota Multiphasic Personality Inventory concluded that the percentage of abnormal profiles appears to be not significantly greater among the blind than the seeing.

Analysis of blind personality through tridimensional auditory and ideational projective media has been advanced by Morris (*119*). In spite of inherent possibilities, this approach has found little use. Brieland (*22*) on the basis of sentence-completion responses from a mixed group of Braille and sight-saving class students matched with sighted controls noted the following personality problems among the blind and visually handicapped: excessive anxiety concerning family relationships, more dissatisfaction with school achievement and activities, and particularly among the partially sighted, increased emotionality.

McAndrew (*112*) further demonstrates the clinical applicability of projective tenchiques in her experiment to determine if handicapped children were more rigid than normals. The Twitchell-Allen Three-Dimensional Apperception Test and a sentence completion test along with satiation, level of aspiration, and restructuring by classification tests were used with three matched groups of blind, deaf, and normal subjects. Her conclusions indicated that it was impossible to say the blind were more rigid than the normal population, that projective tests were applicable to the blind if interpreted cautiously, and finally, that any of the possible variations in personality structure may be seen with blindness.

As noticed, most measures of adjustment for the blind have involved the questionable use of tests standardized upon seeing subjects. As a matter of experimental refinement Jervis and Haslerud (*83*) attempted to analyze samples of the actual behavior of twenty blind adolescents, twenty sighted adolescents wearing blindfolds, and twenty sighted adolescents without blindfolds to induced frustration. Quantitatively the blind responded more verbally and physiologically than the sighted subjects. Qualitatively the blind were felt to respond more intropunitively to frustration, which Jervis and Haslerud felt was a displacement of responses to frustration. Presumably as such this meant the blind individual seldom was extrapunitive, more likely to release tensions through dreams, noticed by Cutsforth (*40*), and in need of opportunity for more direct outlet of emotional tension.

Limitations in the avenues of sensory stimulation serve to heighten or make doubly significant what resources the blind child does possess, as for example, speech.

Speech or language development has received little attention. Maxfield (*110*) contributes some exploratory observations based on eight subjects. During free play their responses dealt with things rather than actions, there was more question asking, less commanding, more frequent naming of children and adults, more incomplete responses, and more emotionally toned language. Maxfield hypothesized two possibilities to explain the unique speech of the blind child. First,

> . . . it seems reasonable to assume that the totally blind preschool child is satisfying his need for a feeling of security through talking a great deal, asking many questions, and using proper names frequently . . . the trends disclosed by these particular questions probably stand for the blind child's attempt to gain that assurance regarding his environment which seeing children obtain through visual observation.

On the other hand,

> . . . it may be that the small proportion of egocentric responses used by these children, together with their large percentage of incomplete responses, may indicate more, rather than less, social maturity, when one compares them with seeing children. If it does indicate more social maturity, the reason may lie in their necessary dependency on others and in the consequently large amount of practice which they have in social situations. The large number of questions may fit into this picture of social maturity also.

In spite of alleged differences supposed to exist between blind and sighted individuals, Brieland (*20*, *21*) actually found that his blind students of high school age, matched with sighted controls on age, sex, socioeconomic status, residence, and speech training, showed significantly better voice ratings. Alleged problems in general effectiveness, pitch modulation, vocal variety, and loudness were not found within the blind and probably reflect an overgeneralization. All these may represent an attitude toward the blind. Factors such as bodily action and lip movement ratings did, however, significantly favor the sighted controls. Obviously the opportunity for visual learning has played an important role here. Thompson's (*166*) data on maturational and social determinants of expressiveness and Fulcher's (*52*) analysis of facial expressiveness tend to support this idea of diminished capacity.

Vocational Guidance

Because of the obvious limitations imposed by reduction of visual acuity, problems of vocational and educational guidance are of peculiar importance for the visually handicapped and the blind. The physical problems loom large in such matters as goal setting and ultimate placement. This is to say that the degree of handicap whether in central visual acuity of the eyes, binocular fusion ability, muscular action, or peripheral and color vision may automatically control occupational selection and placement. These medical and physiological considerations are perhaps primary. Along with this, nevertheless, opinion does exist that intensive vocational guidance is necessary and that proper mental perspective, good work habits, and personality stability are more important than specific job training (*176*). Bauman and Hayes (*9*) have given attention to vocational techniques. Within this category, outside of many standard measures, appear such instruments as an interest inventory (*72*) found practicable in the group testing of blind elementary school children and a clerical test (*15*) for selection of blind applicants for training in office procedures.

AUDITION

Next to vision, the most important sense is audition. Everyday activity is regulated and controlled by the background sounds heard. Perhaps even more significant than this is the fact that audition is related to the development of language and communication. This stresses the function of speech in human relationships and emphasizes the grave limitations in social interaction that will accompany hearing impairment. The lack of hearing may manifest itself in various ways. Many characteristics have been imputed to the child with a hearing impairment: he is indifferent, inattentive, slow, and generally a behavior problem. Although such traits are difficult to substantiate in any one individual, unquestionably many problem cases may be recruited from the ranks of those with demonstrable hearing defects. Fiedler's findings (*48*) lend substance to such a generalization. In her study 1180 pupils in the primary grades were given a pure-tone audiometric test. Classroom teachers then reported which of these children showed problems related to speech, reading, or spelling, suspected hearing loss, ear, nose, or throat pathology, and school retardation. Although a significantly larger percentage of the children with hearing impairment were rated by the teachers as classroom problems, these children were not generally recognized as having hearing losses. Hearing disability undoubtedly has much import relative to human behavior. In recognition of its importance more attention is directed toward the study, diagnosis, and therapy of hearing disorders. The significance of hearing for behavior is perhaps seen in the development of the field of clinical audiometry and increased research related to hearing and hearing disorders.

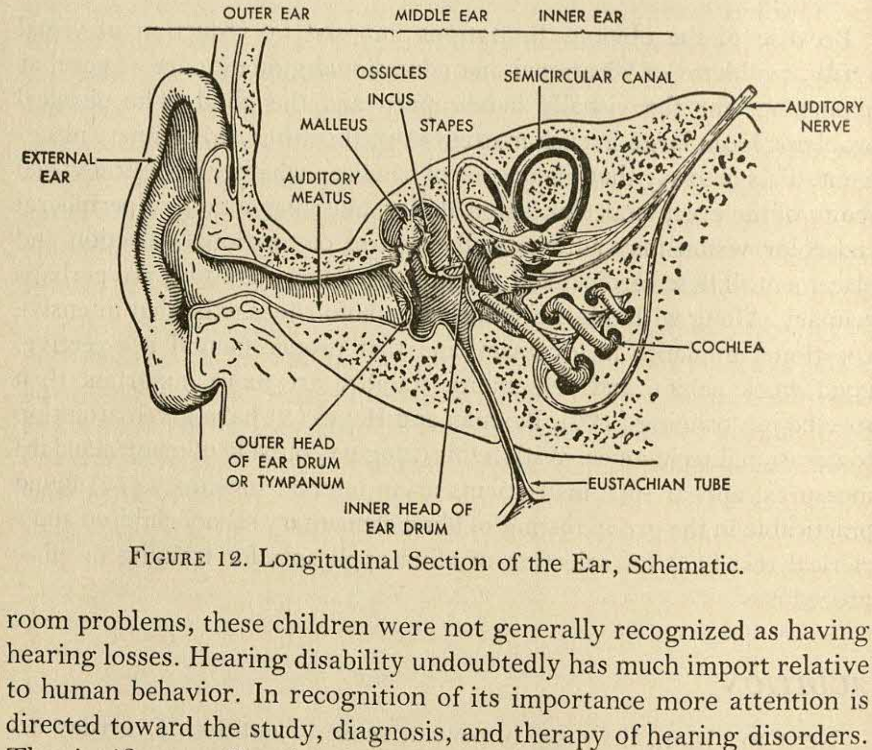


FIGURE 12. Longitudinal Section of the Ear, Schematic.

The ear. The ear, Figure 12, as a sensory receptor, may be divided into three parts: the outer, middle, and inner ear. The outer and middle ear essentially conduct or convey sound waves to the *cochlea* which contains the nervous elements—the sound receptors. The outer ear includes the cartilaginous skin-covered organ known as the external ear, or *pinna* or *auricle*. Although the pinna does serve to concentrate and direct air waves, it is essentially in man a vestigial organ. From the pinna a canal, the external canal or *auditory meatus*, penetrates the temporal bone, runs horizontally about an inch and is covered at its internal terminus by the eardrum or *tympanic membrane*. The skin of the canal secretes a waxlike secretion, *cerumen*, which if impacted may account for one type of hearing loss.

The tympanic membrane is one boundary of the middle ear, an air-filled cavity connected with the oral cavity by means of the *Eustachian tube*. This has some evolutionary significance and its primary function is to equalize pressure on the two sides of the eardrum. In the middle ear is a chain of three bones, the *auditory ossicles*, whose specific names, the hammer (*malleus*), the anvil (*incus*), and the stirrup (*stapes*), are concretely representative of their shapes. These ossicles act as a lever system to transmit vibrations of the tympanic membrane across the chamber to the *oval window*, a membranous boundary between the middle and the inner ear. The mechanical arrangement of the middle ear not only serves to increase the sensitivity of hearing for sound, but also to protect the inner ear from injury by loud sounds.

The inner ear includes two structurally and functionally distinct systems: the *semicircular canals*, which serve the sense of equilibrium, and the cochlea, which is the primary organ of hearing. The cochlea is a spiral tube inbedded in the bone, divided throughout its total length into two compartments by the *basilar membrane* and completely filled with fluid. This membrane with associated sensitive cells of the *organ of Corti* comprise the sensory organ proper. Little is actually known of what happens to a sound wave as it comes through the middle ear into the fluid of the cochlea via the oval window. Mechanical models of the ear (*11*) suggest that fibers of the basilar membrane are set into vibration by the pulsations of the fluid in the cochlear canal. In turn the hair cells of the organ of Corti are stimulated and initiate impulses in the auditory nerve fibers. Theories of hearing incorporate these anatomical concepts and have attempted to account for the facts of auditory experience, especially pitch and loudness.

The semicircular canals have an intimate anatomical connection with the cochlea. As the other division of the complex labyrinth of the inner ear, they are concerned with equilibrium of the body. Furthermore, the close association permits utilizing the semicircular canal as an alternative pathway for sound in the "fenestration operation" (*169*).

Ordinarily sound is transmitted to the cochlea via the external ear and the ossicles, but the skin and bones of the skull also transmit vibrations. This process may not be so efficient nor so sensitive as air conduction, but if the normal pathway is obstructed, bone conduction takes on considerable diagnostic and practical significance.

As indicated the deformation of hair cells within the organ of Corti in some manner stimulates the nerve fibers ending around them. Nerve fibers join at the base of the cochlea with other fibers from the semicircular canals and through other projections and synaptic interruptions, the acoustic fibers are relayed to the brain, specifically the *superior temporal gyrus*, the primary receptive area for hearing.

Auditory acuity and measurement. Hearing has several qualities: recognition of high or low tones, discrimination between tones, or sensitivity to whether a sound is harsh, soft, or uncomfortable, and sensitivity to the strength or weakness of a sound. The important question when discussing the organ of hearing and hearing impairment is what and how well does the individual hear. Auditory sensitivity or acuity takes on significance when it is considered relative to the hearing of the normal population. Thus the concept of hearing loss emerges as the difference between an individual's threshold, the intensity of the test sound necessary for it to be audible to the subject, and a comparable threshold norm, the intensity of the test sound for assumed normal people. This amount of increased loudness, amplification, or attenuation is expressed in the concept of *decibel.* The decibel is simply an expression of the ratio of two sounds, the number of steps, amount of sound energy or the intensity that a sound must be increased above the assumed normal threshold in order to be audible to the individual. The decibel is used to express hearing loss as related to the normal threshold of audibility.

Methods of testing auditory sensitivity have varied from crude and approximate measures to expensive and precision methods. One extreme is represented by the whisper test and the watch test; both supplement each other, the former tapping hearing over the speech range, the latter hearing for high-frequency sounds. Gradually supplanting the use of tuning forks, which provided a tone of fixed frequency for charting the threshold of hearing, are precision methods of measurement like pure-tone audiometry and speech hearing tests. The pure-tone audiometer generates a desired frequency as well as intensity for testing hearing. Threshold values for the normal ear appear well fixed for hearing by air conduction. Moreover, evidence supports the belief that pure-tone audiometric measurements may predict the ability to hear speech. Reliability studies indicate that under standard conditions air conduction measurements are usually within ±2.5 decibels (*36*). Speech hearing tests have developed as an adjunct to pure-tone audiometry and as a means of evaluating the overall hearing function. Rules exist (*171*) for translating the sensory capacity to perceive sounds of various frequencies and intensities into "hearing loss for speech" or to measure "percentage hearing loss." In light of the different speech thresholds (*75*), such as detectability, perceptibility, and intelligibility, it is more satisfactory to measure these more directly and in a manner similar in principle to the pure-tone audiometer.

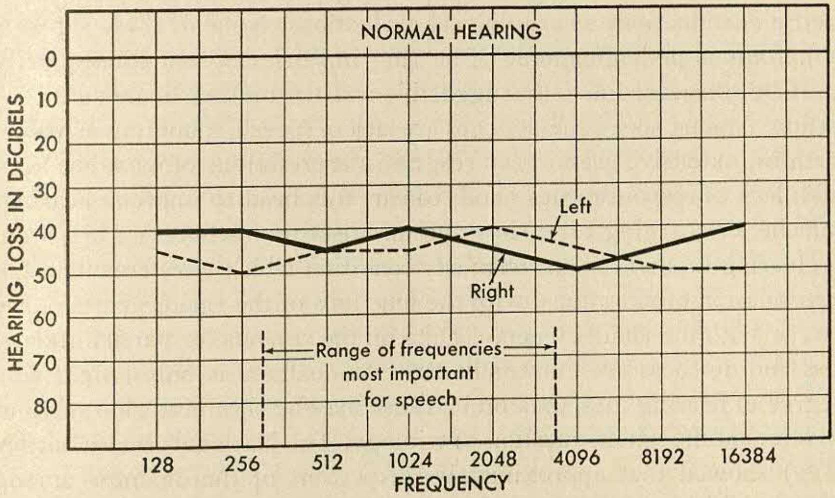


FIGURE 13. The Audiogram.

Auditory acuity and correspondingly hearing loss are portrayed by the audiogram, Figure 13. Three important features are apparent here: (1) the normal hearing line of the audiogram, which represents the standard or assumed or calibrated threshold or zero decibel hearing loss; (2) the hearing loss in decibel scale, which represents the physical dimension or ratio to normal intensity or units of attenuation, and (3) the frequency scale, which since 1946 may more customarily be replaced by the corresponding even frequencies: 125, 250, 1000, 2000, 4000, and 8000. As can be easily visualized the audiogram becomes diagnostically and therapeutically significant. Hearing curves or audiogram patterns reveal not only the severity of loss, but also the loss relative to specific frequencies, as well as the relationship between air conduction and bone conduction. In Figure 13 a kind of flat curve is present, suggesting a hearing loss more or less equal at all frequencies; hearing by bone conduction is not shown and presumably is within the normal range. Periodic audiometric examinations would assist in evaluating the response to treatment and also the trend of any pathological process, if such were operative. Considerable clinical material has been published on the diagnostic interpretation of audiograms (*171*).

Behavioral signs suggestive of auditory difficulties exist and can assist in detecting hearing problems among children apart from audiometric examinations and otological evaluations. None of these signs or symptoms is pathognomonic of hearing impairment, and consequently must be considered as only suggestive and warranting further investigation. Among such behavior cues are lack of speech, monotonous vocalizations, extensive use of gestures, misinterpretations of what has been said, lack of response, cups hands to ear, tilts head to improve hearing, earache, discharging ears, slow and unsatisfactory school work.

Hearing loss will result from any condition which interferes with the transmission of vibrations, with the functions of the various parts of the ear, or with the auditory nerve. Data on the reasons for partial hearing loss and deafness are extremely rare. As deafness is only an extreme degree of hearing loss, data on its cause may be significant in trying to understand the whole question of etiology. The National Health Survey (*122*) showed that approximately 62 percent of the deafness among school children was congenital and 38 percent adventitious. Causes of congenital deafness are hereditary factors, syphilis, intrauterine or neonatal meningitis, birth trauma, anoxia at birth, and maternal infections, such as German measles. Adventitious factors may consist of infections, and trauma. Arnvig (*2*) for 500 Danish school children estimated approximately 38 percent inherited impaired hearing, 13 percent acquired impaired hearing in the prenatal period, 14 percent acquired impaired hearing at delivery, and 35 percent acquired impaired hearing in infancy and childhood.

These broad sets of causes may give rise to the fundamental types of hearing loss: conductive, perceptive, and central deafness. Conduction deafness results when obstructions prevent the conduction of sound normally to the inner ear; for example, when impacted wax, *cerumen*, or *ankylosed* ossicles interfere with the transmission of sound vibrations. Perception or nerve deafness is related to defects in the sensory structures of the inner ear or in the auditory nerve. Central deafness, as here defined, refers to injury or lesions to the brain or brain stem which prevent normal hearing; in these cases the peripheral auditory mechanism is presumably normal. Prevalence of these types of hearing losses is difficult to estimate. Kinney (*92*) in analyzing the causes of hearing loss in 2628 children concluded that (1) the ratio of conduction loss cases to perception loss cases was two to one, (2) of the conduction loss cases a large percentage was due to otitis media, a middle ear infection, and nearly all of these could have been prevented, and (3) the measles virus is probably more prevalent among cases of perception hearing loss than previously reported.

For present purposes information concerning the normal process of auditory development and the consequent problems involved in measuring auditory acuity are of value. As every beginning general psychology student knows there is a "forehandedness of development" and the mechanism for hearing can be demonstrated to be functional *in utero* (*153*). The fetus will respond to sounds originating outside the mother's body at about thirty weeks (*152*) and orchestral music has elicited fetal activity during the last months of pregnancy (*12*). These reactions are assumed to be mediated by the organ of Corti rather than the skin of the fetus. Gesell points out that within a fortnight after birth the full term neonate assumes a listening attitude to the sound of the voice. The Cattell Infant Intelligence Scale (*34*) places a listening attitude somewhat later—two months. Gesell (*57*) suggests that ". . . ontogenetically the infant is at first most susceptible to the sounds of a voice, particularly to the fundamental laryngeal tones with a vibration frequency of 100 to 400 per second, which is also the frequency of the vibrations of his own vocal cords. Later the normal infant becomes sensitive also to the overtones of the laryngeal sounds, whose frequency ranges from 400 to 2400 vibrations." Ewing and Ewing (*47*) have contributed data on the reactions of the normal-hearing preschool child which have assisted in devising tests for the measurement of hearing loss at the younger levels as well as contributing to the knowledge of development within the auditory area. They noticed that infants from the first to the third months responded by reflex movement to percussion sounds and to quiet voices. From four to six months percussions start to become less attractive and within the six to twelve months period sound is localized and less startle shown to noises. The period from one to two years of age is accompanied by responses to speech, but whisper will not elicit reactions, percussions are almost ignored, and reflex responses are rare. From three to five years of age it is possible to secure behavior to both voice and whisper stimulus.

Since pure-tone audiometry seems to require a genetic level of about five years, a number of methods have been described for measuring hearing in younger children. Froeschels and Beebe (*51*) have reported on the use of Urbantschitsch's whistles for testing the hearing of infants. These whistles are compound tones presumably more comparable to speech tones and reliable for evaluating auditory capacity. Other techniques for this age period are the electroencephalogram which has been reported on by Marcus (*108*), and psychogalvanic skin resistance audiometry described by Bordley and Hardy (*17*) and Hardy and Pauls (*66*). The latter technique depends upon the conditioning process and measurement of acuity through skin resistance changes. With the preschool child ingenious devices to hold attention have been used for determining auditory sensitivity. Among such devices is the "peep show" more recently depicted by Cox (*38*). Speech tests for evaluating threshold for normal hearing and degree of hearing loss have been of diagnostic value. Keaster's (*86*) sound-field testing technique which measures the level, in decibels, at which a child can follow directions is an example of the approach via verbal means. Likewise, Meyerson's (*116*) verbal audiometric test of dissyllabic words of spondee stress pattern, that is, words spoken with equal stress on both syllables such as railroad or iceberg, falls in this category.

Auditory Impairment

Any review of literature in this area reveals a host of terms, such as the auditorily handicapped, the hearing-impaired child, the deaf, and the hard of hearing in referring to individuals who demonstrate some loss of hearing. It is apparent that these may or may not imply a precise classification or definition of the group. The latter possibility is more accurate and because of this Meyerson (*117*) advances the thought that these terms are now outgrown for scientific use and need replacement by detailed descriptions on the auditory, educational, psychological, and sociological status of individuals being used in experiments. Notwithstanding this, some attention must be paid to what was conceivably meant in the usage of these terms by various investigators. Reference often has been to the definitions proposed by the White House Conference on Child Health and Protection in 1930 (*174*):

The *deaf* are those who were born either totally deaf or sufficiently deaf to prevent the establishment of speech and natural language; those who became deaf in childhood before language and speech were established; or those who became deaf in childhood so soon after the natural establishment of speech and language that the ability to speak and understand speech and language has been practically lost to them. The *hard of hearing* are those who established speech and ability to understand speech and language, and subsequently developed impairment of hearing. Those children are sound conscious and have a normal, or almost normal, attitude towards the world of sound in which they live.

On the other hand the following definitions promulgated by the Conference of Executives for the Deaf (*37*) have found wide support:

The deaf: those in whom the sense of hearing is nonfunctional for the ordinary purposes of life. This general group is made up of two distinct classes based entirely on the time of the loss of hearing: (a) the congenitally deaf—those who were born deaf; (b) the adventitiously deaf—those who were born with normal hearing but in whom the sense of hearing became nonfunctional later through illness or accident. The hard of hearing: those in whom the sense of hearing, although defective, is functional with or without a hearing aid.

Likewise, definitions, such as those listed below, based on degree of hearing loss as determinants of educational practices have been utilized (*124*).

A. Children with slight losses—average losses of 20 decibels or less in the speech range, in the better ear. These children are on the borderline between normal hearing and significant defective hearing.

B. Children with moderate losses—average losses from 25 to 50 or 55 decibels in the speech range, in the better ear. These are the hard-of-hearing children.

C. Children with marked losses—ranging from 55 or 60 to 65 or 75 decibels in the speech range, in the better ear. These children are on the borderline between the hard-of-hearing and the deaf. They do not have enough hearing to learn language and speech with the unaided ear, but they have residual hearing which can be utilized in their education.

D. Children with profound losses—ranging from 70 or 75 decibels to inability to distinguish more than one or two frequencies at the highest measurable intensity in the better ear. These are the deaf children who do not learn speech and language through their ears even with benefit of amplified sound.

Analysis of these definitions makes understandable the confusion and controversy that such terms have produced in thinking. Furthermore the highly divergent viewpoints relative to defective hearing have served to lessen possibilities for comparing studies and decrease occasions for formulating generalizations. Even though each of the above three definitions as well as those used in individual studies could be critically reviewed, out of necessity terminology chosen by investigators must be accepted for the discussions which follow. Again, for convenience, the major categories of "deaf" and "hard of hearing" shall be used to facilitate the ordering and review of data.

Incidence. As might be anticipated, the incidence of hearing impairments is difficult to determine. A report of the American Hearing Society (*54*) does, however, give some idea of estimates for the school population. This survey was started in 1948 and although it does not cover the entire public school population of the United States, roughly about one-third of the public school population is represented. The incidence of hearing impairment was placed at 4 percent of the population tested. Thus one of every 25 children was found to have a hearing impairment. The pure-tone audiometric testing technique was more efficient in the screening process because it found more hard-of-hearing children and most of them in a given school enrollment. Calculations led the reporting committee to conclude that school systems of the entire country were furnishing lip reading services to one in 500 children and that one in every 2800 pupils wore a hearing aid. Extending the latter ratio to the whole school population would mean that over 10,000 school children wear hearing aids. The incidence of hearing impairment among preschool children is unknown and probably no adequate means of determining this presently exists.

Table 50 summarizes statistics on the deaf. These figures represent the school age population as of 1954 (*161*). In addition to these totals figures representing the multiple handicapped group must be taken into account. As of 1953 (*161*), there were 617 children who had other handicaps in addition to a hearing impairment. This number is divided among the following conditions: aphasias 149, blindness 73, cerebral palsy 276, orthopedic handicap 34. Although this total figure is not large, the mere fact that such combinations exist magnifies the diagnostic process and complicates the therapy regimen.

Auditory Impairment and Psychological Characteristic

Early growth and development. What information is available regarding the effects of deafness on early development or portraying developmental patterns among young hearing-impaired children seems mostly descriptive in nature. These descriptions are often a reflection of some empirical data plus clinical observations which in reality seem quite astute and fertile, but in need of validation.

Ewing (*46*) in a comparative study based upon an unselected sample of preschool deaf children, some of whom had "islands of hearing," and normal children noted that those children severely, but not totally deaf, walked at the same time as the normals, though some slurring and clumsy walking was seen. These authors felt that no backwardness in adaptive behavior was apparent even though there was a definite need for environmental stimulation and social interaction.

Myklebust (*121*) in searching out significant cues for differential diagnosis between peripheral deafness, aphasia, psychic deafness, and mental deficiency states that crucial data for such differential diagnosis lies in the early developmental period. Many of his conclusions, supported by both clinical and statistical data relative to genetic development and auditory disorders, is presented in Table 51. Although this summary is self-explanatory, it should be pointed out that psychological diagnosis in a sense differentiates between these four conditions: the child's pattern of development and behavior tends to be closely related to the type of deafness or auditory disorder. For example, the child with peripheral deafness shows postural and locomotion patterns of development comparable with those seen in normal children. Correspondingly greater retardation in the appearance of these same patterns, however, is exhibited by children with psychic deafness, aphasia, and mental deficiency. In emotional adjustment differences likewise emerge. Good responsiveness, alertness, and some immaturity are noted with peripheral deafness. With psychic deafness social contacts are avoided, preoccupation and bizarreness in social responses are prevalent. The aphasic child on the other hand shows some capacity for relating to others, but this is accompanied with a lack of depth of feeling. As opposed to these three groups, Myklebust describes the mentally deficient child's emotional patterns as being more restricted, passive, and infantile.

Intelligence

It is to be expected that the intelligence-testing movement would incorporate the deaf and hard of hearing. In fact this particular type of population has had its share of measurement and correspondingly shared

TABLE 50. School Enrollment by Sex, Hearing Impairment, and Type of School (*161*)

Type of School	Total	Male	Female	Deaf	Hard of Hearing
Public residential school	14,157	7,731	6,426	11,862	1,658
Public day school	1,954	1,075	879	973	211
Public day classes	4,046	2,112	1,893	2,732	1,238
Denominational and private schools and classes	1,943	1,053	890	1,528	302
Totals	22,100	11,971	10,088	17,095	3,409

TABLE 51. Psychological Patterns Characteristic of Peripheral Deafness, Aphasia, Psychic Deafness, and Mental Deficiency (*121*)

Type of Disorder	History	Behavioral Symptomatology	Auditory Responses	Test Findings			Language Functioning	Emotional Adjustment
				Mental Capacity	Social Maturity	Motor Capacity		
Peripheral deafness	Indicates alertness in general and often consistent response to loud sounds. Not bizarre or seriously retarded genetically.	Not bizarre. Compensatory use of other sensory avenues. Integrated and use environmental clues well.	Consistent and integrated. Good listening behavior. Use hearing projectively. Give scanning responses.	Cluster around average level. Little scatter. Integrated and consistent in performance on tests.	Good except for communication area. Average social quotient of approximately 90.	Good but balance may be disturbed. No generalized incoordination or retardation.	Good inner language. Good gesture. Use voice projectively. Behave symbolically.	Good responsiveness to people through vision. Social perception and contact with environment is good.
Aphasia	Indicates some retardation in development. Confusion re-	Disinhibited, hyperactive, and forced responsiveness. Not use other	Inconsistent, erratic, cannot listen. Disturbed in auditory	Inconsistent and much scatter. Perceptual disturbances	Retarded in all areas but especially in communication, sociali-	Slightly delayed in sitting and walking. Generalized	Poor inner language. Little or no use of gesture. Not	Emotional expression lacks intensity. Try to relate to people. Are

	garding hearing. Lack of shyness but not bizarre.	sensory avenues in compensatory way.	perception. Not use hearing projectively.	improve with structuring.	zation, and motor areas. Average social quotient of approximately 75.	incoördination.	use voice projectively. May unexpectedly use a word. May be echolalic.	not oblivious or bizarre.
Psychic deafness	Began using speech, then stopped. Many anxieties. Willfulness in rejection of environment. Withdrawn and in world of their own.	Bizarre, no compensatory use of senses. Not relate to people. Poor social perception. No projective use of hearing or voice and no gesture.	Seem to willfully reject sound, give indirect responses. No projective use of hearing. Not disturbed in auditory perception. May show fear of sound.	Not perceptually disturbed. May do well on formboards. Reject the test situation in total or in part. Behavior suggests good mental ability.	Deficient in all areas but notably in socialization. Average social quotient of approximately 80.	Stereotyped activity. Rigidity and random movements. Only slight retardation in sitting and walking.	Good inner language but used only for phantasy. No use of gesture and do not use voice projectively. May be mute.	Withdrawn in own world. Lacking in relationship to people. Stereotyped and bizarre.
Mental deficiency	Retardation in all development is most characteristic in history.	Responsive but in low genetic and concrete manner. Not bizarre.	Respond directly or indirectly to tests which are suitable genetically. Use hearing projectively.	Marked retardation in general.	Marked generalized retardation in all areas. Average social quotient of approximately 55.	Generalized retardation with incoordination. Marked delay in sitting and walking.	Language is deficient but not seriously discrepant with mental age. Retarded in all phases of language development.	Passive, phlegmatic, infantile and deficient in animation.

in the errors that accompanied this movement. For every methodological problem which made results on normal groups of subjects questionable, similar ones could be found for the deaf, and the primary ones have always been the extent of hearing loss involved and the nature of the cases in the samples. Meyerson (*117*) would discount findings on the hard of hearing because ". . . of great uncertainty about the nature of the populations that were sampled . . . the results apply to whatever populations the samples represented." Intelligence examinations, even those done among the auditorily handicapped with their concomitant errors, have been part of the tradition aimed at measuring individual differences, predicting behavior, and planning rehabilitation. The fact that such measurement did occur is of value not only because the errors and mistakes are brought to light, but also they become the first step for securing more reliable and valid measures later. In this vein such results will be presented.

Hard-of-Hearing. It is quite reasonable to expect that the performance of deaf and hard-of-hearing children might be inferior to that of children with normal auditory ability. Such a deficiency has usually been demonstrated, although as Madden (*107*) points out in his study published in 1931, the performance of hard-of-hearing children on the Stanford-Binet indicates that they are more like normal-hearing children than they are like the deaf. Madden seems to have made the most extensive study of the intelligence and achievement of hard-of-hearing children. Using the Stanford-Binet with a group of children having the poorest hearing in a New York City school matched for sex, age, and race with normal hearing children significant differences were obtained. The normal children had a mean intelligence quotient of 83.46, while the mean for the hard-of-hearing group was 77.04; this difference of 6.42 I.Q. points was statistically significant. Similar differences were found when scores on the Pintner Rapid Survey test were compared. Further corroborative evidence was supplied when the Otis test was adminsitered in a small suburban school. In this particular sample the number of hard-of-hearing children was small, 13 out of 183 cases had six sensation units, equivalent to decibels, or more loss in hearing. The mean intelligence quotient for the normal hearing children was 101.55 and for the hard of hearing was 93.38.

Madden in analyzing the responses given by his children on the Stanford-Binet found evidence to suggest that the inferior Binet performance of the hard-of-hearing group was not due only to poorer verbal ability.

For example, this group showed superiority on items calling for rhymes and vocabulary definitions.

Sterling and Bell (*159*) had the intelligence quotients of 585 children studied. It will be seen in Table 52 that a relatively larger proportion of serious hearing loss occurs in the lower intelligence groups. This fact, however, the authors point out, must be accepted with caution, since the number of children with serious hearing loss was small.

TABLE 52. Relation Between Intelligence and Hearing Loss (*159*)

	Percentage of Children			Number of Children		
Hearing	Intelligence Quotient Above Average	Intelligence Quotient Average	Intelligence Quotient Below Average	Intelligence Quotient Above Average	Intelligence Quotient Average	Intelligence Quotient Below Average
All children	100.0	100.0	100.0	167	311	107
Normal or above	74.2	71.7	60.8	124	223	65
Slight loss	25.2	26.7	35.5	42	83	38
Loss of 9 or more units	0.6	1.6	3.7	1	5	4

The performance of hard-of-hearing children on verbal and nonverbal group tests has been studied in fairly large groups by Pintner and Lev (*132*). These authors report the mean I.Q.'s of the indicated number of children from the fifth and sixth grades as shown in Table 53. The verbal test used was the Pintner Intelligence Test, and the nonverbal was the Pinter Non-Language Mental Test. It will be noted that the hard-of-hearing groups had lower verbal I.Q.'s, and these differences are statistically reliable. In the nonverbal area differences disappeared. It is also reported that for children who took both tests the hard of hearing had a superior score on the nonverbal, while for the normal hearing there was no difference.

TABLE 53. Test Performance of Hard-of-Hearing Children (after Pintner and Lev *132*)

	Verbal Test		Nonverbal Test	
Hearing Group	*N*	Mean I.Q.	*N*	Mean I.Q.
Normal	1286	99.75	372	102.16
Defective	1186	94.67	315	99.29
15+ decibels loss	461	92.47	140	99.26

Waldman, Wade, and Aretz (*168*) divided 1079 children in grades four to eight into two groups representing two levels of hearing loss.

The group with better hearing had an average intelligence quotient on the National Intelligence Test which was higher than the average intelligence quotient of the group with poorer hearing; mean I.Q. of 99.4 as opposed to a mean I.Q. of 92.1, respectively.

The findings of the large surveys show average test performances within the usually accepted normal range, but in all cases on the verbal tests the hard-of-hearing groups were lower than the normal-hearing groups. Basically this may indicate only the language handicap of those with defective hearing, rather than inferior intellectual potentialities.

Deaf. There is a much more extensive bibliography of investigations on the intelligence of the deaf. Since Pintner and Paterson's (*129*) conclusions questioning the applicability of verbal intelligence tests in general for the deaf, individual performance type scales or other nonlanguage techniques have constituted the major testing instruments. A selective review of intelligence test results is presented in Table 54. To some extent it must be taken for granted, though not entirely disregarded, that these studies are not comparable. Within the experimental design highly idiosyncratic definitions for both the sample and the control group operate. Furthermore, even if similar selection criteria for experimental and control groups had been used, a problem is still posed because of the nonequivalence of test scores.

In spite of these limitations, some interpretations and conclusions can be gleamed from Table 54. It is obvious that many types of testing methods have and can be administered to deaf children. Notwithstanding the overall language disadvantage, even verbal techniques have been used; this is particularly apparent from the works of Glowatsky (*59*) and Levine (*100*). In fact Levine asserted that aspects of deaf thinking were more readily uncovered with verbal testing. Intelligence quotients based on language methods of evaluation are relatively poorer for deaf subjects.

Generally there is no consistency from investigator to investigator in the results obtained for deaf individuals. In light of the noncomparability of these separate pieces of research, perhaps an overall generalization about deaf intelligence is not justifiable. With the exception of the Reamer survey in 1921 and the National Research Council Survey in 1928, the samples in the studies summarized in Table 54 have been highly restrictive and selective. There is some point in a closer analysis of Louttit's (*104*) survey of the Indiana School for the Deaf. In Table 55 are presented the data based upon the Pintner Non-Language Test, given to 404 children in all the grades through high school, and data based on a battery of seven performance tests administered to 45 of these children together with 42 kindergarten children. The distributions show that, in this school at least, the deaf could hardly be considered inferior in mental ability.

Returning to the discussion of evidence representing a selective review of intelligence studies, it should also be noted that Pintner (*133*) concluded that the most probable average intelligence quotients for deaf children were 91 on performance scales, 86 on nonlanguage group tests, and 88 on the Goodenough Draw-a-Man Test. His conclusions were based on a survey of research studies many of which have been included in Table 54. Pintner's summary impression suggests that the deaf demonstrate a test performance inferior to that of hearing persons.

From Table 54, there is furthermore the suggestion of no difference between the congenitally and adventitiously deaf. The data make it difficult to estimate whether day and public school pupils tend to demonstrate better ability as compared with residential pupils. The evidence is scanty, but in one instance, test scores seemed to decrease as the degree of deafness increased. Lower mental ability was found among pupils in classes using manual methods of instruction.

Language Development

In spite of the controversial nature of intelligence test findings, results with verbal test and measures of abstract or conceptual thinking suggest a poorer performance which is assumed to be associated with the language handicap of those with defective hearing. Pintner (*133*), as have countless others, raises the question: "Does the handicap of language carry with it the inability to develop abstract intelligance? . . . Must abstract intelligence in its highest form always depend upon language or other symbols? Are the deaf, because of their lack of hearing, unable to develop a symbolic structure which seems to underlie abstract intelligence?" Other personality characteristics have been attributed to the deaf because of the general language inefficiency. For example, Heider and Heider (*73*) found the written sentences of defective hearing children were both less complex, shorter, and contained less subordination. Templin (*163*) felt that this was evidence, along with her own findings of prelogical reasoning, for concluding that the language usage of the defective hearing was indicative of immaturity. In fact, she states that the

TABLE 54. Intelligence Test Results for the Deaf

Investigator Date of Study	Subjects	C.A.	Tests	Results
Reamer (*139*), 1921	2172 pupils, 26 schools	8 yr. to 21 yr.	Pintner Non-Language Mental Test	Mean I.Q.: 88.4 No relation between age of onset of deafness and scores. Manual pupils lower scores.
National Research Council Survey (*42*), 1928	4432 pupils, 41 schools	12 yr. to 21 yr.	Pintner Non-Language Mental Test	Mean I.Q.: 83.8 No relation between age of onset of deafness and scores. Manual pupils lower scores.
Peterson and Williams (*127*), 1930	300 children	4 yr. to 13 yr.	Goodenough Draw-A-Man Test	Mean I.Q.: 80
Peterson (*126*), 1936	100 deaf children, residential	5 yr. 7 mo. to 17 yr.	Kohs Block Design Test	Mean I.Q.: 92.5
Springer (*154*), 1938	330 deaf children, public day and residential; 330 normal children public	6 yr. to 12 yr.	Goodenough Draw-A-Man Test	Mean I.Q.: Deaf, 96.24 Hearing, 102.21
Zeckel and van der Kolk (*177*), 1939	100 deaf (hereditary deaf-mute) children, residential; 100 normal children	7 yr. to 14 yr.	Porteus Maze	Mean I.Q.: Deaf, 86.09 Normal, 99.36
Bridgman (*19*), 1939	90 deaf children, clinic cases	6 yr. to 21 yr.	1. Grace Arthur Point Scale 2. Ontario School Ability Program 3. Stanford-Binet 4. Healy Scaled Information Test 5. Randall's Island Tests	Median I.Q.: 70

Morrison (*120*), 1940	300 deaf children, residential	4 yr. to 20 yr.	Ontario School Ability Program	I.Q. Range: 50–169
Lane and Schneider (*96*), 1941	133 deaf or speech defective children, residential or day school; 106 normal children public school	6 yr. to 21 yr. 4 mo. 7 yr. to 13 yr. 7 mo.	Advanced Performance Scale (Central Inst. for Deaf): Kohs Block Design, Knox Cube, Sequin Board, Manikin & Feature Profile, Form Boards, Healy Picture Completion I, and Drawing	Mean I.Q.: Deaf, 103.57 Speech defective, 97.12 Normal, 112.75
Burchard and Myklebust (*28*), 1942	189 deaf children (121 congenitally deaf, 68 acquired deafness), residential	7 yr to 19 yr.	Grace Arthur Performance Scale	Mean I.Q.: Cong. deaf, 102.5 Acq. deaf, 101.3 M.A.: Cong. deaf, 13.6 Acq. deaf, 14.2
Capwell (*32*), 1945	134 deaf children (problem children); 43 deaf children (unselected), residential	Students in 7th grade	Grace Arthur Point Scale	Mean I.Q.: 87 Problem group Mean I.Q.: 95 Unselected group
MacPherson and Lane (*106*), 1948	61 deaf children;	3 yr. 8 mo. to 11 yr. 2 mo.	1. Hiskey Test of Learning Aptitude	Mean I.Q.: Deaf, 113.87 Normal, 101.67
	66 speech defective (normal hearing) children, residential	13 yr. 10 mo.	2. Performance Scales: a. Randall's Island Series or b. Advanced Performance Scale (Central Inst. for Deaf)	Mean I.Q.: Deaf, 116.62 Normal, 101.05

TABLE 54. Intelligence Test Results for the Deaf (*Continued*)

Investigator Date of Study	Subjects	C.A.	Tests	Results
Kirk and Perry (*94*), 1948	49 deaf children (tests 1, 2), day school;	5 yr. to 11 yr.	1. Ontario School Ability Examination	Mean I.Q.: Deaf, 102.9 Normal, 102.9
	49 normal children (tests 1, 2, 3), public school		2. Nebraska Test of Learning Aptitude	Deaf, 95.8 Normal, 95.7
			3. Stanford-Binet	Normal, 107.3
Hood (*76*), 1949	401 deaf children, residential and day school	8 yr. to 12 yr. 11 mo.	1. Alexander's Performance Scale of Practical Ability	Mean I.Q.: 99.3
			2. Picture Vocabulary and Word List of Stanford-Binet	Scores decrease as degree of deafness increases. Some correlation with I.Q. (in 105 cases).
			3. Reading Comprehension	Retardation in reading level
Oleron (*125*), 1950	246 deaf children	9 yr. to 21 yr.	Raven's Progressive Matrices (1938)	Deficient in abstract intelligence
Birch and Birch (*16*), 1951	53 deaf children		1. Leiter International Performance Scale 2. Goodenough Draw-A-Man Scale 3. Grace Arthur Point Scale 4. Hiskey Test of Learning Aptitude	Leiter scores consistently lower; may predict academic success more accurately

Smith (*149*), 1952	58 deaf children; residential	4 yr. to 16 yr.	1. Progressive Matrices (1947) 2. Progressive Matrices (1938) 3. Jenkins Non-Verbal Test 4. Attainment Tests a. Schonell's Silent Reading Test b. Burt's Arithmetic Test	Mean score: 97.6 Mean score: 86.5 Mean score: 95.7 (Mean C.A.: 12.8) Mean reading age: 8.6 Mean arith. age: 9.0
Glowatsky (*59*), 1953	10 deaf, 14 hard of hearing children, residential	7 yr. 5 mo. to 15 yr. 7 mo.	1. Grace Arthur Point Scale of Performance Tests, Form II 2. Wechsler Intelligence Scale for Children 3. Goodenough Draw-A-Man Test	Mean I.Q.: all 24 children 99.67 Verbal: 67.00 Performance: 97.33 Full scale: 79.46 98.46 No significant difference between the two groups
Graham & Shapiro (*61*), 1953	20 deaf children (Group I); 40 hearing children (in two groups, II and III)	6 yr. 3 mo. to 12 yr. 2 mo.	Wechsler Intelligence Performance Scale (Goodenough used to equate the 3 groups in I.Q.)	Mean I.Q.: Deaf (I): 96.1 Hearing: Group II: 95.5 Group III: 101.2
Ross (*141*), 1953	61 deaf children, public	3 yr. to 10 yr. 6 mo.	1. Ontario School Ability Examination 2. Nebraska Test of Learning Aptitude	Mean I.Q.: 104.6 104.8

Table 55. Distribution of Intelligence at the Indiana School for the Deaf

Class	Pintner Non-Language Test				Battery of Individual Performance Tests							
	Grades 1 to 12				Kindergarten				Grades 1 to 12			
	Boys		Girls		Boys		Girls		Boys		Girls	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Very superior	13	6.2	6	3.1	2	8.7	0		1	3.4	0	
Superior	55	26.2	58	29.9	1	4.3	0		3	10.3	1	6.2
Slightly above average	53	25.2	30	15.5	5	21.7	8	42.0	3	10.3	1	6.2
Average	55	26.2	58	29.9	9	39.1	5	26.3	7	24.2	4	25.0
Slightly below average	10	4.8	21	10.8	2	8.7	1	5.2	1	3.4	3	18.8
Low normal	21	10.0	20	10.3	3	13.0	3	15.8	13	44.8	7	43.8
Borderline	2	0.9	1	0.5	0		2	10.5	0		0	
Feeble-minded	1	0.5	0		1	4.3	0		1	3.4	0	
Number of cases	210		194		23		19		29		16	

deaf are about five years retarded in the quality of their explanations.

Because of the relationship between language development and hearing impairment, emphasis has been put on early diagnosis and early language learning in order to offset any interference with the acquisition of language and with psychosocial development. It has been demonstrated that a natural development of speech elements will occur provided diagnosis is early. Ewing and Ewing (*45*) show how with supervised home training, young deaf children, ranging in age from twelve weeks to three years, learned to comprehend meanings more readily than older deaf beginners. The earliest beginnings of speech appeared at 1½ to 2 years of age. Goodhill (*60*) makes the claim that a completely deaf child given preschool education in lip reading can be taught to understand approximately 1350 words and to speak 500 to 600 words by the first grade.

Language teaching is the greatest problem in the education of the deaf. The basic question, and a controversial one, revolves about what means of communication shall be taught—oral methods emphasizing teaching the individual to talk and read lips, or manual methods which utilize fingers to portray letters of the alphabet. Jellinek (*82*) advances the idea that the degree of hearing loss and the age at which it occurs are the two major variables which determine the type of speech training a child should have.

Outside of fairly agreed opinion that language instruction should begin early, somewhere in the neighborhood of two, practically no definitive experimental studies have been devised to investigate the comparative efficacy of communication methods. Johnson (*84*) has attempted to evaluate the ability of pupils to understand language through various means of communication. Her experiment used pupils from grades four through nine of a residential school who had been taught either by means of (1) amplified sound, lip reading, and written materials, or (2) lip reading and written materials, or (3) a combination of signs, finger spelling, and written materials. An analysis of the mean scores on special tests for measuring the ability to understand conclusively showed that the sign of manual method was less efficient as a mode of communication, Table 56. Furthermore, the greater the severity of the deafness and the earlier the age of onset of deafness, the less efficient were the use of signs. Johnson concluded that neither the amount of pure-tone hearing, nor age of onset of deafness were significant factors in understanding various methods of communication. What seems to stand out in the ability to understand language was the degree and intensity of meaningful auditory experience after deafness.

The concept of auditory training is not new and has as its objectives, improvement of speech, improvement in lip reading, improvement in language skills, as well as psychological well-being (*148*). Johnson's study suggests that these are obtainable goals, and further corroboration is seen in the results of Hughson, Ciocco, Witting, and Lawrence (*78*). Hudgins (*77*) has even demonstrated that profoundly deaf children with hearing aids receiving undistorted speech signals near the threshold of pain showed improvement in speech perception, in general educational achievement, and to a less marked degree in speech intelligibility. Some, such as McConnell (*114*), go so far as to say that preschool acoustic classes may determine which children make the transition from the status of deaf children to that of hard-of-hearing children able to profit from a wider range of experiences.

TABLE 56. Summary Data for Pupils Taught by Acoustic, Oral, and Manual Methods

Data	Method		
	Acoustic	Oral	Manual
Number of pupils	77	96	80
Mean age in years	17.3	16.8	18.4
Mean I.Q., Chicago Non-Verbal Test	95	97	99
Percentage of pupils losing hearing after age 6	26.9	4.1	0
Mean percentage of residual hearing for pure tones	43	20	16
Mean years in regular schools	3.17	0.76	0.72
Mean years in schools for the deaf	7	10	11
Mean grade, New Stanford Achievement Test	6.3	5.1	5.1
Mean scores on special tests to measure ability to understand by:			
Speech hearing	63	1	0
Lip reading	66	33	9
Hearing plus lip reading	92	32	10
Finger spelling	73	75	76
Signs and finger spelling	62	60	59

Investigations dealing with the use of hearing aids and their relationship to adjustment, achievement, hearing for speech and speech improvement have occurred along with the preceding type of study. With respect to the last two variables obtained evaluations were negative. Lorge (*103*) in analyzing Fowler's data on matched groups of children, those in one group wearing hearing aids and those in the other group acting as controls, and a group given hearing aids at random for a two-year period concluded that no significant differences were shown between aid user and nonaid user groups in amount gained in hearing speech capacity. This is not to say that no improvement appeared, but the estimated 10 percent of measured improvement was assumed to be unrelated to the factor of wearing or not wearing a hearing aid. Weaver (*172*) also adds by concluding from his group of twenty school children, ranging from the fourth to the tenth grades, that the number of years an aid was worn seemed to have no relationship to amount of residual hearing. In fact he noticed that the children seemed to show little concern about approaching social adequacy in hearing ability.

Educational Achievement

Educational progress is related to many factors, but deficiencies in language ability have been singled out as not only important in intellectual results, but also in the educational test performance of the hard of hearing and the deaf.

Hard of hearing. Considerable uniformity exists in spite of the date of investigation when it comes to evaluating the educational status of the hard of hearing. All studies show retardation. Humphrey (*79*) reported that 60 percent of 768 hard-of-hearing children had repeated at least one quarter, but he further says that this retardation was not wholly the result of the hearing deficiency, though this was an important factor. Warwick (*170*), Laurer (*98*), and Sterling and Bell (*159*) all report a high proportion of retardation among children with hearing loss. As surveys these reports of proportion of retardation cannot be taken as an adequate indication of academic achievement. When Madden (*107*) matched his group of 46 hard-of-hearing with normal-hearing children on the basis of sex, age, race, and intelligence quotient, he found no differences in the achievement of the two groups as measured by the Stanford Achievement Test. Nonsignificant differences found were in favor of the hard of hearing for word meaning, spelling, and arithmetic computation. Waldman et al. (*168*) likewise found no differences in Stanford Achievement Test educational quotients when hard-of-hearing children were equated with hearing children for intelligence. Somewhat contradictory to the findings of Madden and Waldman are the conclusions of both Sprunt and Finger (*157*) and Prince (*136*). Sprunt and Finger matched 28 children with deficient hearing with 28 normal-hearing controls. In contrast to Madden and Waldman, they felt nonverbal intelligence was a significant variable for matching. The conclusion was reached that the hard-of-hearing child will progress more slowly in the typical school situation. Differences on arithmetical reasoning, paragraph meaning, and language usage subtests were all statistically reliable. Similar findings were obtained by Prince. In his case pupils with impaired hearing (1) at all frequencies, (2) at low frequencies only, and (3) at high frequencies only were compared with normal hearing junior high school pupils. The first and second groups showed significantly inferior achievement. No differences were seen in the group with impaired hearing at low frequencies.

Deaf. When the achievement of the deaf is considered, investigations can be found dealing with the question of just educational retardation, attainment in subject areas, and the relationship of educational achievement to specific variables, like method of teaching and type of school. In looking at studies on the deaf, Reamer's survey (*139*) in 1921 (covering twenty-six schools, 2172 pupils ages eight through twenty-one) and the National Research Council Survey (*42*) in 1928 (covering 41 schools, 4432 pupils, ages twelve to about twenty-one) reveal extremely slow progress in educational achievement. In both surveys the Pintner Educational Survey Test was administered and the analysis of results on this scale for both surveys according to Pintner is as follows:

> All comparisons of the deaf with the hearing child in educational achievement show the former to be greatly retarded. If we think in terms of years or grades, it would seem on the average to be about three or four years' retardation. If we think in terms of quotients, it would seem that their average E.Q. is about 70 . . . educational achievement and age of onset of deafness are always correlated. Children who become deaf after age four to six do much better on all our educational-achievement tests than those who are born deaf or who become deaf during the first few years of life.

Although some of the older students in the above data were from Gallaudet College for the Deaf, Hall's survey (*64*) in 1929 on preparatory students and freshmen at the same college noted that they might be considered somewhat overage in grade as well as retarded in terms of hearing norms for educational achievement. Fusfeld (*53*) in 1953 generally substantiated this finding with a somewhat similar preparatory class.

Reading, spelling, arithmetic, and lip reading are areas that have been examined in an attempt to understand and improve the educational performance of the deaf child. Since extreme deficiency in language abilities has been emphasized by almost all investigators, reading can be expected to offer some barriers to the deaf child. Sheldon (*146*) defines some of the handicaps existing as the deaf child approaches the area of reading: lack of auditory memory, an inadequate speaking vocabulary, and occasionally defective speech. With regard to the memory variable, Brill (*23*) has demonstrated deficiency in memory for long sentences among deaf children.

Appraisal of the silent reading abilities of acoustically handicapped children compared with normally hearing children after examination with the Iowa Silent Reading Test, the Durrell-Sullivan Reading Achievement Test, and Otis Quick-scoring Mental Ability Test resulted in the following summary by Pugh (*137*): (1) reading achievement was below the estimated verbal ability of the subjects; (2) reading ability is associated with the amount of hearing loss and age at the time of loss; (3) vocabulary and sentence meaning reveal the greatest retardation; (4) attendance in regular public school appears to be conducive to a comparatively high reading achievement; and (5) a high relationship seems to exist between social adjustment and reading achievement. In light of Thompson's (*165*) findings that handicaps in reading might be lessened by more intensive work at the time of entry into school, such retardation need not necessarily exist.

Notwithstanding relatively poor overall language performance, Templin (*162*) did find the deaf significantly superior in spelling as compared with a hard-of-hearing and normal-hearing group. The deaf misspelled approximately half as many words as the hard of hearing and approximately one-third as many as the normal hearing. Templin believes this performance is to be attributed, in part, to greater drill emphasis in training the superior visual word perception.

Comments on arithmetic are largely descriptive. Poulos (*135*) states that deaf children are proficient in computation, but retarded as much as four years in arithmetic reasoning. Here, presumably, language handicaps are again responsible.

Before leaving academic achievement of the deaf, attention must be turned to some independent studies which in some cases tend to support or in turn corroborate evidence already presented. Day school attendance seems related to superior performance in an earlier study by Upshall (*167*). As noted in the discussion of language, Table 56, Johnson revealed a relationship between educational scores and teaching by the acoustic method. No significant difference in academic achievement has

Table 57. Review of Studies on Personality and Adjustment of the Deaf

Investigator	Subjects	Method	Results
Brunschwig (*26*)	183 boys and girls, residential school, average age 16; also compared with 346 normals	Brunschwig Personality Inventory; Pintner Non-Language Mental Test	Statistically significant correlation between percent hearing in better ear and good adjustment; small association between good adjustment and intelligence; small relationship between good adjustment and age.
Pintner and Brunschwig (*130*)	159 deaf children, average hearing loss 80 percent in better ear, day school, 2–3 years older than 345 normals	Check list of 39 fears; 7 pairs of wishes forcing choice between immediate and deferred gratification	Girls had significantly greater number of fears; unreliable correlation between scores on fears, wishes and percent hearing loss in better ear; statistically significant difference in direction of preference for immediate gratification by deaf.
Springer (*154*)	200 boys, 150 girls, ages 6–12, day and residential schools	Haggerty-Olson-Wickman Behavior Rating Schedules	Small correlation between percent hearing loss and behavioral ratings (-0.08 to $+0.20$); small correlations between age of onset of hearing loss, both sexes, and behavior problem tendencies ($r = +0.39$ for girls and $+0.13$ for boys).
Kirk (*93*)	112 elementary day school for deaf pupils, experimental group composed of deaf and hard of hearing with average loss of 72 and 50 decibels, respectively; compared with standardization population.	Haggerty-Olson-Wickman Behavior Rating Schedules	Doubtful comparability for experimental and standardization group; no significant differences between groups.

Springer (*156*)	377 children, day and residential schools, 6–12	Brown Psychoneurotic Inventory for Children	Small correlations between age at loss of hearing and neurotic score.
Springer (*156*)	376 children, day and residential schools compared with 295 normal children	Brown Psychoneurotic Inventory for Children; Goodenough Draw-A-Man Test	Lack of significant association between intelligence and neurotic score.
Springer (*156*)	397 children, day and residential school for deaf compared with 327 normal children	Brown Psychoneurotic Inventory for Children	Questionable experimental design, but impaired hearing group significantly more neurotic; older children tended to give more neurotic responses.
Springer (*154*)	377 children, day and residential schools, matched for age, intelligence, socioeconomic status, compared with 415 normal children	Haggerty-Olson-Wickman Behavior Rating Schedules; Goodenough Draw-A-Man Test; Barr Scale	Both groups had higher scores—more behavior problem tendencies—than standardization population.
Streng and Kirk (*160*)	97 children, 6–18, day schools, 51 average hearing loss 72 db and 46 average loss 46 db	Vineland Social Maturity Scale; Arthur Performance Scale; Chicago Non-Verbal Test	Average social maturity for both groups; no difference in social maturity; correlation of 0.29 between social maturity and intelligence.
Streng and Kirk (*160*)	97 children compared 26 children who lost hearing before age 2–6	Vineland Social Maturity Scale	No differences between groups.
O'Connor and Simon (*123*)	49 problem children, 6–20, residential school compared with group of 206 in same school; two-thirds of both groups congenitally deaf	Brunschwig Personality Inventory and Ratings	No difference in median hearing loss; median age at onset of deafness earlier adventitiously deafened; no relationship between chronological age and adjustment; no difference in median intelligence quotients.

Table 57. Review of Studies on Personality and Adjustment of the Deaf (*Continued*)

Investigator	Subjects	Method	Results
Pintner and Brunschwig (*130*)	714 children, residential school	Brunschwig Personality Inventory; oral, manual or combination teaching methods	Although manually taught lowest in adjustment, this considered an artifact; children from families where no deaf members had lowest mean adjustment.
Bradway (*18*)	92 children, ages 5–21, residential school, hearing lost before two	Vineland Social Maturity Scale	Mean social quotient 80.7; difference not significant in group who lost hearing after five.
Avery (*4*)	50 children, ages 10 months to 6 years, residential school or day kindergarten for deaf	Vineland Social Maturity Scale	Normal and possibly superior with modified scoring.
Burchard and Myklebust (*29*)	104 children, residential school	Vineland Social Maturity Scale	Retardation of 15–20 points in social quotient; those longer in residence significantly more retarded; no significant difference between 54 congenitally deaf and 50 adventitiously deaf.
Burchard and Myklebust (*29*)	104 children, residential school	Haggerty-Olson-Wickman Behavior Rating Schedules; Arthur Performance Scale of Intelligence	No significant relationship between intelligence and behavior problem tendencies; low correlation between intelligence and social maturity.

been seen between deaf and hard-of-hearing children who wore hearing aids during school hours for three semesters (*6*).

Personality

Hard-of-hearing. An overview of studies suggests that the differences between the hard-of-hearing and the normal-hearing are fairly slight. Madden (*107*) for example, asked the teachers of hard-of-hearing children in the groups he studied to rate them on attentiveness, obedience, leadership, shyness, and feeling of being slighted. There were no differences between the normal and hard-of-hearing children except in leadership and shyness. Pintner (*128*) in two separate investigations concludes (1) the hard-of-hearing child is as successful in his adjustment as the normal child, although adjustment scores decrease with severity of hearing loss, and (2) on ascendance-submission and extroversion-introversion no differences emerge between hard-of-hearing children and normals. Extremely hard-of-hearing individuals did not appear so emotionally stable as their hearing counterparts. Habbe (*63*) in an intensive and well-defined study with high school youngsters essentially found no significant differences in personality adjustment and characteristics between two groups of forty-eight boys, a hard-of-hearing group and a normal control group, twelve through sixteen years in age, matched for school, age, grade, intelligence, socioeconomic, and national background. On rating scales practically the same standing for both groups was seen in social shyness, school truancy, reaction toward authority, careful thinking, temper outbursts, sustained attention, indifference, personal appearance, mental activity, physical energy, depressed attitudes, social habits, and moods. Two studies have reported improved personality adjustment with wearing hearing aids (*6*, *134*).

Deaf. Many influences enter to determine the manifold behavior reactions and adjustment of the deaf as well as to differentiate deaf personalities. Among those listed by Barker (*5*) are attendance at type of school, that is, residential as opposed to day school, degree of hearing loss, age of loss of hearing, duration of hearing loss, chronological age, intelligence, means of communication, and extent to which deafness is present within the family. Many of the relevant studies on these factors as they enter to affect adjustment are summarized in Table 57.

Conclusions which can be drawn suggest that (1) adjustment as measured by inventories and scales is not significantly correlated with degree or duration of hearing loss, with age of onset of hearing loss, or chronological age; (2) poor adjustment and social immaturity as measured by tests and inventories seem associated with residential school attendance; and finally (3) relatively better adjustment tends to be associated with intelligence and the presence of other deaf member within the family.

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Chapter

13

Neurological and Physical Disabilities

In Chapter 12, visual and auditory defects were discussed in detail because they appear to have a definite significance in relation to psychological problems. A number of other physical disabilities also play important parts in the etiology of psychological problems. Three groups of these may be conveniently distinguished. The first includes those conditions based upon neural pathology; of these epilepsy and encephalitis shall be presented in detail. The second group is listed under the heading of "orthopedic impairments" since the emphasis is on neuromuscular disabilities. The last group are systemic conditions; here are included rheumatic fever, diabetes mellitus, and allergy.

NEUROLOGICAL DISORDERS

Brain pathology in general. It is conceivable that throughout the groups of neurological and sensory disorders a common symptomatology may appear, especially when the brain and brain stem are involved. In fact clinicians have long observed the presence of such symptoms and utilized them diagnostically even though detectable signs of intracranial involvement could not be medically demonstrated. The diagnostic value of psychological tests in detecting organic brain disease has long been well established.

This chapter was written by David H. Crowell, University of Hawaii.

The symptoms or, better yet, the syndrome reflecting brain pathology in general has been variously referred to as "organic behavior," or the "brain-injured" (*161*) syndrome, or "neurophrenia" (*45*). The nature of the symptoms and the severity of these will of course depend upon the extent of the damage to the central nervous system. Typically these symptoms incorporate emotional instability which is presumed to be related to the release of cortical control. The experimental laboratory work of Sherrington (*155*) and Bard and Mountcastle (*2*) substantiate the role the cortex plays in the threshold and patterning of emotional response. Accompanying this release phenomenon is impairment of intellectual functioning as revealed by difficulties in comprehension, attention span, memory, and symbolic activity. Aphasia, apraxia, or agnosia may be seen. Sensorimotor signs are often evident, among these may appear difficulties in visuo-motor coördination and perseveration of movement. Klebanoff, Singer, and Wilensky (*81*) have described psychological changes accompanying organic brain lesions. Doll (*45*) likewise has summed up signs assumed to be suggestive of brain pathology in the following detailed descriptions:

1. *Behavior* is "organically driven" with manifestations of hyper-activity, irrelevance and anxiety. The overtones are those of apparent neurotic perseveration. A particular feature is the disparity between structured versus unstructured performances. The spontaneously initiated behavior reflects the higher level, better integration, rational direction, suitable relevance and minimal conflict overtones. In contrast, attempts at structuring or controlling the behavior destroy these purposefully organized activities and produce low level, irrational, anxious, neurotic indications. It is as if the behavior pattern is atomized (disintegrated) by attempts to improve it.
2. *Posture and movement* reveal awkwardness rather than orthopedic handicap. This lack of kinetic facility is not immediately apparent, but skilled observation readily discerns a lack of precision in manipulation and movement. Neuromuscular embarrassments are readily detected in offhand tests of heel-to-toe walking, or balancing on one foot. They may be referred for more precise orthopedic examination or may be left at the level of observation. Performance tests, such as the Heath rails, the Oseretsky and Van der Lugt scales, may be used for quantification.
3. *Intellectual functioning* typically reveals marked retardation or disharmony. This is apparent in both verbal and non-verbal test situations as well as in abstract versus concrete performances. Yet the observations suggest interferences to expression rather than essential mental deficiency. These impairments are related to other behavior symptoms as enumerated below.

4. *Language* is developmentally retarded, sometimes amounting to developmental aphasia, and shows both tonal and propositional weakness, as well as poor syntactical formulation and dearth of vocabulary.

5. *Speech* is impaired in articulation, tonal quality and inflection.

6. *Visual perception* is disturbed, although visual acuity appears generally intact. The ocular-motor aspects of perception are presumably involved as are also visual-motor translation.

7. *Auditory perception* is likewise impaired. Severe hearing loss is usually suspected but is typically a functional consequence of other psychological disturbances. When these disturbances are controlled, auditory acuity appears to be relatively intact except perhaps for weakness of pitch discrimination or tonal perception with obscurity of meaning. This suggests a sensory component for the developmental language deficiency.

8. *Rhythm* appears to be disturbed but has not yet been adequately appraised for clear symptomatology.

9. *Laterality* disturbances are common, with high incidence of left-sided laterality but also many confusions, so that the term "sidedness" is to be preferred to "handedness." One must also consider the nature of laterality fixation in terms of its etiology.

10. *Attention* is distractible, yet may also be highly perseverative. This confuses the behavior picture, especially with reference to structured versus unstructured interpretations, the child attending well spontaneously, yet poorly under efforts at control.

11. *Emotionally* the behavior is variously autistic, aggressive, destructive or disturbed. Apathy, resistance and withdrawal, alternate with hyper-activity, aggression and anxiety.

12. *Conduct* is dynamically unpredictable, alternating between relatively infantile and mature manifestations. Intermittency is a common characteristic and affects nearly all behavior details. The current of behavior is accordingly "phasic." This is apparent in alternations of rapport versus inaccessibility, and oscillation from affectionate acceptance to negativistic withdrawal.

13. *Learning* reflects these overall behavior disturbances in variable permutations. This applies to nearly all forms of learning whether in the area of self-help, social relatedness, scholastic endeavor or occupational pursuits. These phases of behavior reflect the contradictory and unstable qualities of the personality as a whole.

14. *Social competence* is subnormal for both age level and measured intelligence, but "flashes" of adequacy disturb the evaluation by hinting at "frozen assets."

15. *Concept formation* is restricted and seems best developed through repetition of experience and instruction. Precept and example are not clearly differentiated nor readily assimilated.

16. *Retention* is intermittent, variable, uncertain; ritualized performances perseverate; memory appears as "identification"; recall efforts are groping; rote exercise substitutes for understanding.

17. *Effort* seems whimsical and willful, with tasks egocentrically pursued, or eccentrically abandoned as if the initial *telos* had vanished. Purposive action is thus seen as compulsively continued, irrelevantly varied, or unaccountably interrupted, depersonalized, or pseudo-schizoid.

18. *The integrity of behavior* is therefore not well established for any particular sphere of performance or for total adaptation. Its ambivalent qualities are confusion and bewilderment, perhaps best conceived as lacking in focus.

Mental organization. Perhaps more investigation has been done on the mental organization of the brain-injured child than with other psychological characteristics and is represented by studies of Werner and Strauss (*172*, *173*), Werner and Bowers (*170*), Werner and Thuma (*175*, *176*), Bijou and Werner (*12*), and Werner and Carrisson (*171*). These investigations can be summarized by stating that the brain-injured child appears to be impaired in sensory-motor functions, in perceptual integration, and in conceptual organization. More specifically these studies dealt with an attempt to differentiate between the familial type of mental deficiency, endogenous group, and the type of mental retardation which was the result of brain-lesions, exogenous group. Strauss (*160*) contended that the exogenous group showed a lack of integration of mental and bodily growth when chronological age, height age, and mental ages were compared. Furthermore the brain-injured children showed less development in mental growth when exposed to a favorable environment. This latter fact is difficult to account for, but separate examinations on performance did reveal a lower performance age. Werner and Strauss (*172*) in analyzing the performance test results concluded that visuo-motor activity in the brain-injured child was of a different genetic order, that is, more incoherent. Werner and Bowers (*170*) verified this conclusion in a slightly different way and stated ". . . the performance is not due to a deficiency in a specific sensorimotor field, auditory or visual. It seems to be based on a much more general factor, intersensorial in nature. We may speak of a sensorimotor syndrome characterizing the exogenous type." Werner and Strauss (*174*) indicated that along with this intersensorial syndrome exists the fact that background material, as opposed to the figure, exerts a strong effect on brain-injured children, that is, the background has strong stimulus value. Through experiments with apparent motion, critical fusion frequency, and responses to projective tests perceptual inadequacies were also revealed. This perceptual deficiency often meant defective integration. Analysis of conceptual thinking and conceptual relationships (*173*) has shown that the brain-injured child is impaired not so much in regard to concept formation, but as a result of response patterns peculiar to the development of brain-injured children. These response patterns are best described as a forced responsiveness to stimuli, a lack of emotional control, and a motor disinhibition. All these studies emphasize the deficiency in integration and the need for coping with these deficiencies to facilitate handling and education of the brain-injured child. These studies have had wide generality and have been basic to other investigations with specific clinical groups, such as the works of Dolphin and Cruickshank (*47*, *48*, *49*) on cerebral palsy groups.

Relative to learning, Sheer (*153*) postulates that there may be a common factor in learning for the brain-injured child. He reasons that behavior associated with organic defect may range from hyperkinesis to stereotyped patterns, which are actually attempts to cope with stimuli. Difficulty in learning follows because of the inability to resist distraction and to sustain attention. Organic brain damage means deficient attention and lowered emotional motivation which Sheer believes are an aspect of the same underlying physiological process. Implications for education are (1) make learning emotional or ego-involving, and (2) increase the attention value of the stimulus situation.

Personality. Practically no generalizations, outside those observations relating to emotional patterns, can be made about brain-injured children and personality characteristics. Studies have been conducted on defined groups, such as postencephalitic, epileptics, and cerebral palsy, which will be discussed later. Werner (*169*) in reviewing the Rorschach responses of the exogenous feeble-minded mentioned that emotionality and lack of integration were present. Klebanoff et al. (*81*), and Block (*13*) both emphasize the need to examine the social milieu of the brain-injured child to better appreciate the interaction and the results on both mental organization and personality. Bender (*8*) is of the opinion that behavior problems seen in children with organic brain disease are directly related to social and emotional problems in the environment and a poor psychological relationship with reality. She proposes support to avoid isolating experiences and aid to overcome specific disabilities, which in turn should improve patterning in the perceptual area and personal relationships.

Clinical aspects. Appraisal of children with neurological defect takes on a new importance because the "organic" signs are useful diagnostically, therapeutically, and educationally. Meyer and Simmel (*119*) advance the idea that qualitative as well as quantitative testing results can assist in the differential diagnosis of children with neurological defects. They distinguish roughly three groups.

Group I. Children with prenatal or neonatal impairment. In this category are (1) children with congenital defects and severe retardation. Psychological results reveal low scores without much variability in the pattern, higher performance scores, and overall deficiency in handling abstract materials. Also in this category are (2) children whose development has been interfered with during the neonatal period. Good verbal facility is present, but learning is mere rote and does not involve comprehension.

Group II. Children with impairment following sudden injury or disease. These children have apparently developed normally until the time of some trauma. As might be expected, a level of information, achievement, and performance is present, but in contrast is difficulty in learning. Within this group may be found cases where attentional defects are outstanding.

Group III. Children with recurring seizure states. Presumably the loss of consciousness means loss of effective contact with the environment and consequently irregularity in performance.

It must be remembered, however, that these groups represent cues which Meyer and Simmel have found clinically valuable. In a sense they utilize characteristics inherent in brain lesion, but nevertheless, are in further need of verification.

Epilepsy

Definition. The term epilepsy itself is commonly used in spite of attempts to redefine it. Among these is Lennox's (*89*) treatment which he insightfully faces by saying ". . . the delusion that a disease can be lightened by altering its name cannot be condoned." He advances several ideas: (1) to use the phrase "a person subject to seizures" to escape the onus of the term epilepsy, or (2) the description "disordered electrical currents of the brain" or in medical terminology "cerebral dysrhythmia." Lennox and Cobb (*96*) suggest that "paroxysmal disorders" or "convulsive states" would be better terms than epilepsy. Currently the phrase "paroxysmal cerebral dysrhythmia" is more often seen.

Even though epilepsy is often characterized by convulsive attacks and some degree of loss of consciousness, the convulsions or seizures are not invariable accompaniments of the condition. The tendency has been to describe it in terms of its underlying pathology, thus again the emphasis on "paroxysmal cerebral dysrhythmia." Bridge (*17*) whose volume *Epilepsy and Convulsive Disorders in Children* is recommended reading states that the ". . . diagnosis of epilepsy is best reserved for conditions not acute but giving rise to a tendency toward recurrences of seizure."

The main elements of a seizure are (1) impairment or loss of consciousness, (2) involuntary muscle movements, and (3) abnormal sensations and mental disturbances. The specific form a seizure may take in terms of the predominance of these elements has led some authorities to speak of the "epilepsies" instead of epilepsy. With regard to classification two broad etiological categories are commonly used: (1) idiopathic epilepsy, known as true, essential, or cryptogenic (hidden), and (2) symptomatic epilepsy, referred to as traumatic or acquired. In idiopathic cases presumably no etiological factor is discernible other than a constitutional or hereditary tendency. In symptomatic cases the epilepsy presumably follows an injury or lesion to the motor cortical areas of the brain which can be traced to definite prenatal, birth, or postnatal sources.

Etiology. Speculations about the etiology of epilepsy as well as observations have given rise to an assumption that some individuals have a constitutional predisposition or a lowered convulsive threshold. Lennox (*93*) concludes, after reviewing data based upon 12,119 near relatives of 2130 epileptics and analyses of the electroencephalographic patterns (brain waves) of 470 relatives of 50 twin pairs affected by seizures, that ". . . not epilepsy per se, but a tendency or predisposition is inherited and the encephalographic pattern is an hereditary trait; . . . The incidence of epilepsy was higher among relatives of the following: female epileptics; those with petit mal or whose seizures antedated any pathology of the brain; those in whom it developed early in life, and in whom mental abnormalities were present at birth." Lilienfeld and Pasamanick (*103*) in 1954 summarized findings on 564 children with matched controls and concluded that ". . . results of this study indicate that there exists a relationship between certain abnormal conditions associated with childbearing and the subsequent development of epilepsy in offspring . . . these abnormalities were just as frequent among epileptic children whose parents did or did not have epilepsy . . . and raise doubts as to the genetic basis of convulsive disorders. . . ." In essence this means in effect that epilepsy may be associated less with heredity than with complications related to pregnancy. It is interesting to note that they suggest cerebral palsy, discussed later, may be the result of a more severe type of brain damage.

Deterioration. Bridge (*17*) in studying 742 cases noted that these factors were responsible for the precipitation of epilepsy: no known cause for 30.2 percent of the cases, birth and neonatal injuries for 22.8 percent of the cases, vascular occlusions for 12 percent of the children, head injuries for 7.1 percent, and for 20.8 percent of the group brain injury with cause unknown.

Seizures in infancy and/or childhood appear frequently enough in case records to warrant consideration as to whether they are related to epilepsy in this sense. Are they a precursor of epilepsy or do they represent a transient phenomenon? Reviewing studies of children with febrile convulsions, 302 in all, Peterman (*137*) felt that they attest to the gravity of the problem and demand an appreciation of its relationship to epilepsy. He found that approximately 74 percent of the children with febrile convulsions also had organic brain lesions. A majority of these appeared under one month of age and before six months of age. If febrile convulsions did occur in the first three years of life, Peterman believes that an inherited convulsive tendency was present. He concludes that the convulsion is a major symptom with about a 71 percent chance of recurrence. Bridge (*17*) adds to this question on the relationship of infantile convulsions to epilepsy by stating, "In the absence of recurrences and especially if the initial seizure occurs before the age of 3 or 4 years there is high probability of a favorable outlook."

Incidence. Incidence figures for epilepsy have been summarized by Lesser and Hunt (*100*), who estimate that around 275,000 children under 21 years, based upon a ratio of five accurately diagnosed cases per 1000 children, have epilepsy.

Seizure types and measurement. Differentiation of the types of epilepsy is directly tied in with the method of measurement. The advent of Hans Berger's account on brain waves in 1929 meant that cerebral action potentials, and the electroencephalogram, the means of recording cerebral action potentials, were eventually to be used for classifying the types of epilepsies. Along with the electroencephalogram, physical appearance and response to drugs have also been used to distinguish between types. The classification of electroencephalograms used by Gibbs and Gibbs (*63*) is portrayed in Figure 14.

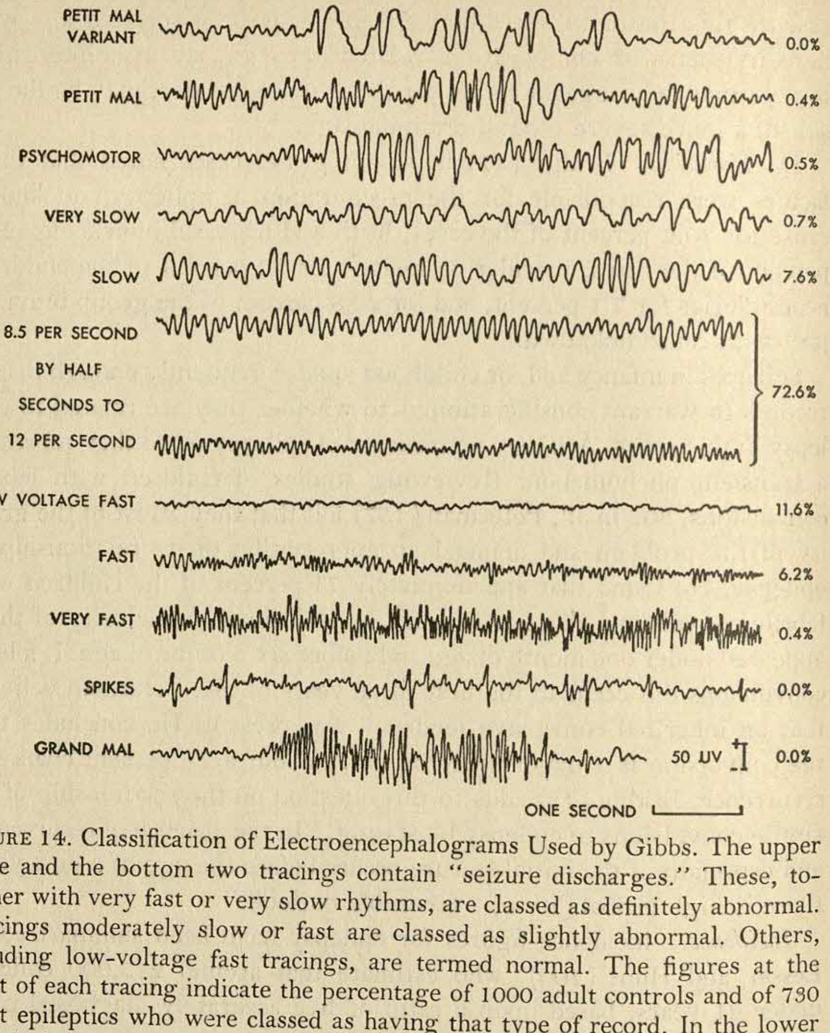

FIGURE 14. Classification of Electroencephalograms Used by Gibbs. The upper three and the bottom two tracings contain "seizure discharges." These, together with very fast or very slow rhythms, are classed as definitely abnormal. Tracings moderately slow or fast are classed as slightly abnormal. Others, including low-voltage fast tracings, are termed normal. The figures at the right of each tracing indicate the percentage of 1000 adult controls and of 730 adult epileptics who were classed as having that type of record. In the lower right-hand corner is the deflection made by a current of 50 microvolts.

Grand mal is the most severe type of attack, indicated on the electroencephalogram by high voltage, fast spikey waves. While details of the picture vary a great deal from patient to patient, there are always tonic and clonic muscular spasms and loss of consciousness. Following the aura in patients having them, and usually without warning, the patient loses consciousness and with a cry or moan falls to the ground. There is extreme muscular rigidity, tonic spasm, the tongue and cheeks may be bitten by contractions of the masseter muscles, pallor is succeeded by flushing, the pupils dilate, and the patient becomes cyanotic. This stage usually lasts less than thirty seconds or so, then may begin the clonic stage. Here there are violent movements of the legs, arms, and trunk. After this extreme muscular exertion the patient goes into a stuporous stage. Exhaustion, fatigue, and headaches sometimes follow the attacks. After regaining consciousness the patient is completely amnesic for all that has happened. Patients sometimes pass from one grand mal attack to another without completely regaining consciousness. This condition is known as *status epilepticus.*

Petit mal, also known as pykno-epilepsy, is a mild type of attack. There may be nothing more than an aura, or there may be a slight dizziness. The patient loses consciousness for a few seconds; his eyes may appear to be staring vacantly into space. Although tremors sometimes appear, usually there are no motor signs. The attacks may occur during a conversation, a walk, or any other activity. Such activity is stopped for the moment, but upon regaining consciousness the individual carries on without being aware that anything has happened. The spike and dome feature seen in Figure 14 is characteristic of this type of epilepsy.

Myoclonic jerks, defined as single shock-like jerks of arm or trunk muscles, without apparent loss of consciousness, frequently occur in patients who are subject to petit mal.

Jacksonian epilepsy, perhaps more properly called Jacksonian convulsions, is characterized by clonic spasms localized in a group of muscles. The muscle group may be within an arm, a leg, or the head region, or it may involve large segments up to one-half of the body. In some cases the spasms may spread until the whole body is involved and consciousness is lost. Jacksonian attacks may indicate a rather definite neural lesion, but they sometimes are the forerunners of grand mal attacks.

Certain special symptoms occur with sufficient frequency and independence that they have been named. Among these are (1) *psychomotor* or *psychic equivalent seizures* characterized by a square-topped serrated wave pattern. Lennox (*92*) describes this as "A period of amnesia, with or without tonic spasm or contortion of trunk muscles. The victim may appear to act in a normal manner, or be confused or mutter; make chewing motions; have a 'running fit'; or become immobile with slow rotation of the body"; (2) *akinetic epilepsy* which may give rise to a lack of postural control, that is, a slumping of the body; (3) *autonomic* or *diencephalic seizures* which ". . . . may be termed epileptiform because the cardinal feature of unconsciousness is absent . . . the manifestations are paroxysmal disorders of the central nervous system and often accompany other more usual forms of epilepsy" (*92*).

Intelligence. The question of intellectual status and impairment invariably appears in connection with epilepsy. Survey of the literature indicates that several variables enter into the whole question and need analysis in order to gain perspective. Studies have concerned themselves generally with the distribution of intelligence scores and the problem of deterioration. Notwithstanding this, other questions have arisen: are there differences between institutional and noninstitutional cases; to what extent does etiology enter to determine intellectual status, that is, will differences exist between idiopathic and symptomatic epileptic children; what is the relationship between intelligence standing and the age of onset of epilepsy; is frequency of seizure, or severity of seizure related to deterioration; and lastly to what extent can duration of epilepsy be expected to lead to deterioration? These and other questions have considerable meaning relative to education, overall prognosis, and definite attitudes about epilepsy. Results on these inquiries are not definitive, but some questions have been answered with more certainty than others. Numerous investigations suggest that the overall intellectual level of institutional patients tends to be lower than that of epileptic patients outside institutions and the normal population. Evidence on this score is forthcoming from the earliest work of Wallin (*167*, *168*) who concluded from results on the 1908 Binet test that two-thirds of his group of 333 epileptic institutional cases, both children and adults, were mentally defective. In terms of chronology there can be added the studies of Fox (*60*), Dawson and Conn (*37*), Hilkevitch (*71*), and Reed (*147*).

In 1924 Fox examined 122 epileptic children and adolescents, all institutional cases, by means of the Burt-Binet and reported a median intelligence quotient of 71 for boys and of 63 for girls. Dawson and Conn (*37*), likewise using the Burt-Binet with 49 epileptic children and preadolescent hospital cases, arrived at a mean intelligence quotient of 80. The more recent studies of Hilkevitch with 66 idiopathic institutional children and adults, resulting in mean intelligence quotient of 75, and that of Reed on 295 institutionalized epileptic children and adults reporting a median mental age of 5.8 years, substantiate the generally lower results found with intramural patients. Establishment of the fact that institutionalized epileptics are of poorer endowment may be just a reflection of the selection factor and not a causal relationship.

It is conceivable that not epilepsy but gross cerebral damage, true mental deficiency, and earlier development in a marginal environment has contributed to the picture. Belinson (*6*) in a survey of institutionalized epileptics and their electroencephalographic characteristics suggested that the institutionalized epileptic problem is one definitely associated with mental deficiency. Just as individuals with psychomotor epilepsy tended to find their way to institutions, so may the same process be involved for those with low intellectual potential.

Studies of the so-called extramural patient, however, are of a different vein. These essentially point up the fact that the populations sampled do not show the wide discrepancies noted in institutional groups. Perhaps the latter statement has to be modified somewhat in the light of the findings of Fetterman and Barnes (*56*), who in 1934 with 105 epileptic children and adults in a hospital dispensary arrived at a mean intelligence quotient of 74. This study is somewhat of an exception, for Sullivan and Gahagan (*164*) in 1935 examined 103 hospitalized children and reported a mean intelligence quotient of 88, a median intelligence quotient of 92. Also, Collins (*28*) in 1951 reported a mean intelligence quotient of about 108 for 400 adolescent and adult epileptic private patients. Kugelmass, Poull, and Rudnick (*82*) likewise show higher median scores for their private patients with idiopathic epilepsy. It is interesting to observe that those patients with secondary epilepsy, defined by Kugelmass, Poull, and Rudnick as a condition in which, besides the epilepsy, a constant "cerebrogenic factor" was superimposed upon the mental status, had consistently lower median intelligence quotients. Somewhat of the same picture obtains in the findings of Somerfield-Ziskind and Ziskind (*157*) who with 100 outpatients, both children and adults, estimated a mean intelligence quotient of 93 for the total group, but a slightly higher mean of 97 for the idiopathic group as opposed to 88 for the symptomatic group. Lennox and Collins (*97*) in 1945 with 186 co-twins, adults, determined the mean intelligence quotient for 149 nonepileptics was 108, for 27 epileptics with no sign of brain lesions was 96, and for 10 epileptics with brain injury present was 77. The validity of such findings can always be questioned because of the presence of factors which are recognized to be related to intelligence test performance, for example, socioeconomic status. At face value, nevertheless, it is difficult to assert that the distribution of intelligence for the epileptic outside of an institution does not approximate the normal population at large.

There is also evidence for suggesting that idiopathic epilepsy produces different intelligence test results than does symptomatic epilepsy. More specific data on such differences is contained in Winfield's (*178*) comparison of four groups of fifteen each, normals, cryptogenic epileptics, symptomatic epileptics, and posttraumatic encephalopaths who were matched for age, education, and intelligence. Results on specialized tests of intelligences, that is, tests measuring verbal meaning, reasoning, associate learning, etc., showed differences of the following sorts: (1) cryptogenic epileptics did not show impairment on these tests, but symptomatic epileptics and posttraumatic encephalopaths did show impairment; (2) brain damage and not the presence of epilepsy is responsible for impaired intellectual functioning, and (3) length of time since onset of seizures and medication was not interpreted to have effect on impaired intellectual efficiency.

Many associate epilepsy with deterioration, implying that the condition means a progressive loss of ability or abilities. The best methods for evaluating such a hypothesis would be longitudinal studies of the same group of patients over a number of years, test-retest studies, and combinations designed to ferret out whether abilities were lost with age of onset, duration of the epilepsy, and severity of attack. Although varying results have been obtained from test-retest methods, the data from representative investigations of Fox (*60*), Dawson and Conn (*37*), Patterson and Fonner (*134*), Fetterman and Barnes (*56*), Hilkevitch (*71*), and Falk, Penrose, and Clark (*54*) make it difficult to formulate any generalization about deterioration applicable to all cases. This naturally is a telling point against the hypothesis of epilepsy and deterioration. Furthermore, the weight of opinion as reflected in Collins (*28*), Reed (*147*), and Winfield (*178*) are against such an idea. Collins in her summary states that mental deficiency is not necessarily a correlate of epilepsy. Epilepsy with brain damage may have associated with it deterioration, but environment may also be a potent factor in causing apparent deterioration. Reed likewise states that his results ". . . suggest that possibly the widespread belief in the deterioration of epileptics is not so much actual deterioration as low mentality from birth."

The evidence for relationship of age of onset, duration, severity of attack, and medication administered on intellectual performance is scanty. Relative to each of the above points the following studies can be consulted: (1) on relationship of age of onset, studies of Paskind (*133*), Sullivan and Gahagan (*164*), Collins (*27*), Winfield (*178*), and Hilkevitch (*71*)—the first two finding a relationship, the latter three no association; (2) duration of epilepsy, a study by Collins (*28*), who found no relationship; (3) severity of attack in Hilkevitch (*71*), who demonstrated a small difference, and (4) effect of anticonvulsant therapy in Winfield (*178*), Bridge (*17*), and Lennox (*90, 91*). Although Bridge reports some impairment because of dosage, Winfield inferred no effects, and Lennox offers evidence both pro and con on the question. Clinically it is easy to demonstrate that heavy dosage does produce some sluggishness and impaired concentration.

All the above material leads into a consideration of the validity of the hypothesis on deterioration. Obviously deterioration does not uniformly accompany epilepsy. If a progressive loss of ability does appear other causes can be found or postulated: (1) deterioration may represent mental deficiency which was congenital and accompanied by epilepsy, but which was also the primary causal agent for any seen loss in mental abilities; (2) deterioration may be the principal result of brain injury; (3) apparent dullness may be the effect of sedative drugs, but the effect is reversible, and (4) impairment and apparent decrease in mental potential may be due to a lack of educational and social opportunity.

Personality. Clark (*25, 91*) was the strongest advocate of an epileptic personality, believing that the potentially epileptic individual was egocentric, supersensitive, and emotionally poor, failing to project his interests outward into the environment in a normal healthy manner. Others have ascribed definite personality characteristics to the known epileptic. They are said to be irritable, subject to sudden changes in mood, stubborn, easily offended, often impulsive, conceited, inconsiderate, given to temper tantrums and fighting. There can be no doubt that some epileptics do exhibit such traits, but whether they are a necessary part of the epileptic picture, or are compensatory behavioral resultants of the seizures or fear of seizures is an open question.

Theories or at least hunches and generalizations from clinical observations exist concerning the association between personality and epilepsy. Lisansky (*104*) summarizes such theories in the following manner. One set of theories relates personality to constitution, that is, (1) all individuals who develop idiopathic epilepsy are born with an epileptic constitution which is accompanied by an immutable epileptic personality, or (2) the etiology of epilepsy is a specific personality trait or type which is fundamentally constitutional, or (3) constitutional defects or at least certain emotional states or personality traits precipitate the seizures. The other set of theories are not concerned with the etiology of seizures, but associate the seizure to personality adjustment. In this sense, (1) seizures give rise to organic changes which produce changes in the personality, or (2) the seizures create problems and the personality is a reaction to such problems, or (3) personality is conceived as the resultant of the cumulative factors of the seizures creating stress plus cerebral changes. Lennox (*91*) would add to this array the possibilities that personality or personality disorders in the epileptic may be the sequelae of overdosage with sedative drugs, such as might be seen when bromides were used fairly exclusively, or may be a reflection of mental retardation itself.

Reviewing the above makes significant the fact that one's theory automatically conditions one's perspective on epileptic personality. Only several of these listed theories admit the possibility of differences existing among epileptics in behavioral traits. The best resolution of the concept of an "epileptic personality" is to review selectively past published studies on the topic. Table 58 summarizes and suggests that the concept is a highly tenuous one and best dismissed.

Even though such evidence as seen in Table 58 may indicate that traits found among epileptics are nonspecific, there are further data (*104*, *99*) to indicate that maladjustment may be a concomitant of epilepsy. Lennox (*99*) particularly stresses the importance of the social environment and the existence of social injustices against the epiletic which cause emotional difficulties. Epilepsy has a background of dread, shame, and discrimination. These are reflected not only in statutes, but also family, public, and personal attitudes. Even if social beliefs were disregarded, evidence for emotional involvement and adverse reactions to epilepsy can be demonstrated in the attitudes children have towards their condition. Carter (*23*) in reviewing case histories excised and classified types of attitudes on the part of epileptic children. Although some (1) confined their reaction to the aura experience or expressed nonchalance about "spells," and ignorance of their condition, others (2) showed considerable concern about the problem and interestingly enough their families had considerable anxiety, or (3) felt anxiety about the effect of their epilepsy on others, or (4) recognized that being epileptic now prevented them from a normal life, or (5) indicated that having epilepsy opened them to accusations of using the seizure as a mechanism of escape. The attitudes of course have consequences as far as behavior is concerned. Berlin and Yeager (*10*) demonstrates by case histories the effect of parental feelings on the child's emotional state and also on the

Table 58. Review of Studies on Epilepsy and Personality (Adapted from Lisansky [*104*])

Investigator	Subjects	Method	Results
Clark (*25*) 1918	50 private cases	Interview; questionnaire	Every case of essential epilepsy shows some of the "epileptic traits" to a marked degree.
Notkin (*132*) 1928	150 adult clinic patients	Life history data	"Personalities encountered in epileptic patients are variable, not specific," 16.6 percent show "epileptic make-up."
Sullivan and Gahagan (*164*) 1935	103 clinic children, 2 to 14 years	Behavioral description, test observations, reports from home, school, etc.	Conduct disorders are not characteristic of all epileptic children. Epileptic problem children usually come from poor homes. Earlier onset is usually associated with personality disorder.
Meyers and Brecher (*120*) 1941	25 epileptic and 25 control cases, matched, male, 15–45.	Kent-Rosanoff word association test	Reaction time, individual responses, perserverative tendency on retest, etc., are compared: no significant differences: ". . . data derived fail to support the clinical concept that a specific personality syndrome characterizes the 'epileptic' individual."
Lisansky (*104*) 1948	10 noninstitutionalized epileptics and 10 diabetic controls, matched. Ages 19–38, 7 males and 3 females.	Psychological battery: intelligence, concept-formation, and projective techniques.	"Among our epileptic subjects, nearly all of whom developed epilepsy in adolescence or adulthood, there is a clear trend toward greater maladjustment with shorter duration of illness." "Our data, as far as they go, do indicate there is no typical personality picture which characterizes the epileptic group and distinguishes it from other sick or neurotic groups."
Landisberg (*85*) 1947	20 institutionalized epileptics, 15 males and 5 females, ages 11–71.	Observations; intelligence, achievement, and personality tests.	No evidence for specific personality patterns.

frequency and severity of epileptic seizures. Likewise Jensen (*76*) through case history material demonstrates the relationship between home situation and familial attitudes and cessation of seizures. Examination of Bridge's (*16*) data shows that 54 percent of his group of 742 children did not have any evidence of personality disorder. On the other hand 37 percent did show mild disorders and 9 percent severe disorders. The 37 percent of mild personality disorders had their origins most often within the familial group.

The relationship of emotional state to seizure pattern has received considerable attention both because it bears on the question of etiology and also because it has offered an opportunity to determine the effects of psychotherapy, and consequently release of emotional tension on seizure. Although not discussed in the survey of Lisansky's theories, certainly the Freudian approach would be considered an example of the emphasis on the fact that psychical forces could precipitate epileptic discharge. Freud's theory, described by Bartemeier (*5*), essentially suggests that ". . . convulsions are a general way to discharge destructive energy. . . . While all human beings have this innate, preformed possibility of discharge, the predisposition of those who finally develop a convulsive pathology consists in their predilection for the convulsive way of discharge. If the energy quantum is high enough and other ways are blocked the non-predisposed individual will turn to convulsions in order to relieve the mental apparatus of tension. . . ." This theory does not explain the physiological facts of the condition; nevertheless it does facilitate an appreciation of the relationship of emotional tension, conflict, and anxiety-evoking situations to seizures. Such a relationship can be demonstrated in the psychotherapeutic studies of Barker (*4*), Diethelm (*44*), and Gottschalk (*65*), all three of whom show that the personality setting in which the epileptic seizure occurs is important, that the seizure may represent a pattern of handling intense emotional reactions, and that the proper release of emotional tension under psychotherapeutic conditions makes for a better prognosis. Deutsch and Wiener (*43*) describe realistic objectives for children in whom emotional problems were pressing. Among these goals are (1) lessening or actual removal of the acute source of emotional disturbance, (2) support in handling developmental problems accentuated for the epileptic child, and (3) reconditioning better to accept limitations and foster positive use of potentialities. Deutsch and Wiener imply that treatment may involve parents in their clinic. A report by DeFries and Browder (*38*) on group psychotherapy involving epileptic children and their mothers has shown that such a group approach may be more valuable than individual psychotherapy and accomplish an improvement in attitudes toward therapy, as well as relieving anxiety over the disease and producing significant improvement in behavior. In current thinking situational factors are recognized and emphasis laid on the fact that neglect of mild personality problems in epileptic children may produce severe barriers to normal living (*16*, *17*).

Education and vocation. It is easy to accept the fact that attendance within public schools for epileptic children has been earmarked by rejection, segregation, and fundamentally fear. Since the early pioneer efforts by the Detroit public school system and the Baltimore Project (*177*), increasing numbers of epileptic children have entered the national public schools. Exact estimates of those in special schools or classes are difficult to determine, epilepsy being included statistically with children handicapped by cardiac and other debilitating conditions and described only as "delicate" (*158*). There is nothing to suggest that the educational program for epileptics should be any different than that proposed for the child in the regular schoolroom. Individual differences do exist and constant reëvaluation may be demanded in some cases. Relative to higher education Lennox, McBride, and Potter (*98*) demonstrate that a little over half of the schools replying to their statement were willing to accept epileptics unconditionally. As for educational goals and limitations, these are likewise individual and relative to talent and interests, though some have urged vocational goals involving minimal public interaction. Himler and Raphael (*72*) concluded that approximately 70 percent of their group did creditable college work and a somewhat larger percentage reflected satisfactory personal adjustment after college.

Vocational problems undoubtedly exist for the adolescent or young adult with epilepsy (*143*). Numerous reasons can be advanced for this: the potential hazards that may exist on the job for them and other employees, the problem of insurability, and outright discrimination. Epileptics are employable, with respect to necessary cautions, and studies demonstrate that they can make satisfactory work and social adjustments. Among these is the analysis of the work and social adjustment of twenty-two unselected male clinic epileptic patients, ages 20 to 52. This led to the idea that "internal adjustment" exemplified by the patient's attitude, his independence, acceptance of his spells, willingness to tell friends and employers, and to accept rejection were present in those making the best work adjustment. Lennox and Mohr (*88*) in their discussion state,

> In general, patients with the more severe medical handicap showed the better work adjustment. They had experienced the terrors of epilepsy and found them, after, not so terrible. Patients with slight medical handicap had less reason to fear and were more fearful. The families reacted oppositely. They were more able to accept the illness when the medical handicap was slight. This emphasizes . . . that the treatment cannot be successful if it depends on medication alone. The very patients who are best controlled medically are those who need most help in coming to terms with their illness. Without such "internal" adjustment to the illness, "external" adjustment in work activities is much more difficult.

Encephalitis

A number of neurological conditions may give rise to behavioral sequelae. Among these are diseases which seem to have a special affinity for the central nervous system. Such diseases are often viral in form and designated as *neurotropic*. Attention will be devoted to several of these viruses, first, *encephalitis*, and in the section on orthopedic impairments, *poliomyelitis*.

Definition. Early in the nineteenth century clinicians reported cases of brain fever which suggest they may have been dealing with encephalitis. Encephalitis is a generic term, meaning literally an inflammation of the *encephalon* or brain, and is often applied to a number of conditions that have not been clearly separated. One of these conditions is an epidemic variety known as *encephalitis lethargica* or *von Economo's encephalitis*. The term *encephalitis lethargica* reflects the description of the disease by von Economo and its only disadvantage as a term is the undue emphasis on a single symptom. The phrase epidemic encephalitis reflects the fact that this is the only type of encephalitis which has had a worldwide incidence. The work of the Matheson Commission (*110, 111*) and Neal (*127*), also working under a grant from the Matheson Commission, present detailed medical aspects of the condition. The condition is of interest because of the frequent behavior and neurological sequelae.

Incidence. Incidence figures are not readily evident. Muckenfuss (*125*) says that all ages are vulnerable, incidence seems somewhat higher among males than females. He goes on to quote MacNalty (*109*) that ". . . for every definite and characteristic case of encephalitis lethargica there is a large and indeterminate number of people who receive and carry the infection without themselves suffering noticeably or at all." Of known cases of encephalitis among children a larger proportion of boys are seen, with the age of onset for children before the age of seven. Bender (7) for a six-year period observed that the incidence in a large metropolitan hospital was about 55 out of a total of 4000 cases under the age of fifteen.

Symptoms. The problems of diagnosis and treatment of the acute phase are entirely medical, but a brief description of the clinical picture during the acute stage will be presented. Symptomatology of the acute attack varies and is not necessarily found when examining cases of chronic encephalitis (*126*). The onset may simulate a common head cold; there may be fever, abnormal involuntary movements, double vision, insomnia, facial paralysis, pupillary anomalies, drowsiness, and coma. In some patients insomnia, reversed sleep curve, overactivity, excitement, and delirium may occur.

The chronic stage of encephalitis is of most importance since it demonstrates the varied motor and personality disturbances which may follow in the wake of this infection. Greenbaum and Lurie (*66*) in their analysis of 78 cases of children who had encephalitis noted that each of these cases showed behavioral changes either immediately after the acute stage or in some cases as much as nine years later. Neal (*126*) points out that the symptomatology of chronic encephalitis is as varied as that seen in the acute phase. The two most representative types are (1) *Parkinsonism*, which frequently follows when the acute attack occurs in late adolescence, and (2) mental and behavior disorders when the acute phase occurs in infancy and childhood. Of course these are not invariably correlated with these age groups, for Parkinsonism may be seen in children and personality disturbances in adults. Parkinsonism or the Parkinsonian syndrome is characterized by the gradual development of a stiff, expressionless, "masklike" face, muscular rigidity, or rhythmic jerkings either in single limbs or in arms, legs and head, respiratory spasms, and monotonous voice. The gait is affected to some degree. For a more detailed description of the postencephalitic syndrome as seen in adults Neal is recommended. In passing ocular reactions, particularly the *oculogyric crisis*, where the eyes remain in varying positions for periods of time, hyperkinesis, and mood swings have been noted.

The non-Parkinsonian types according to Neal show symptoms of behavior disturbances or mental retardation, sleep reversal, hyperkinesis, choreiform, athetoid, or dystonic movements, and petit or grand mal seizures.

Intelligence. The question of intellectual status is not easily resolved. Table 59 adapted from Pintner, Eisenson, and Stanton (*144*) and supplemented with other studies, shows only variability and slight decreases if reëvaluation took place. Various points of view exist regarding the effect of age of initial encephalitic attack on mental impairment. Ford's (*59*) view limits permanent arrest to infancy, Heersema (*69*) believes mental retardation is likely if the virus infection occurs before five years, as do Brown, Jenkins, and Cisler (*19*) if the attack was present before age ten. Sherman and Beverly (*154*) did not find impairment with onset of attack before ages six or seven.

Personality and behavior. Bender's (*7*) description of encephalopathic behavior disorders reflects her feelings that there are major problems appearing in this group. These are (1) the motility disturbance, (2) intellectual defects which leave the child unable to organize and integrate perceptual experiences, and (3) personality disturbances resulting in asocial behavior.

> The behavior disorder as such, or personality pattern, is characterized by the psychopathic personality type of reaction with a hyperkinesis that is not modifiable by psychotherapy of the insight or reassurance type or environmental control, except over long periods. It is best understood as an organic driveness of brain stem origin . . . This hyperkinesis leads the child to contact the environment continually, by touching, taking and destroying. It also leads to continuous contact with persons with over-affection and abusiveness, clinging and nagging. As the personality becomes integrated, there is a tendency for asocial behavior in every field, sexual gratification, stealing and destroying property, resisting routine and truanting, running away, etc. Although the child has some awareness that he cannot control his behavior, he is not concerned with guilt or anxiety but with fear of results and apprehension. The behavior can be partially controlled under supervision but not by trying to treat or train the ego drives.

There is little question that disturbed personality patterns are often associated with postencephalitis. Greenbaum and Lurie (*66*) classified their 78 cases into simple behavior difficulties, 26 cases; psychopathic behavior, 36 cases; and psychosis, 16 cases. The presence of a characteristic type of personality anomaly has led others to generalize and assume that the behavior problems which arise in the school situation suggest a

Table 59. Summary of Studies on Intelligence of Postencephalitic Children

Study	Test	Number of Cases	Age Range	Range of Mental Ability	Mean I.Q.	Mean Difference Test-Retest
Sherman and Beverly (*154*)	Terman-Binet	20	3–19	High-grade defective to very superior	88	+5.06
Shrubsall (*156*)	Binet	21	5–14	High-grade defective to average	82	−11.19
Bromberg (*18*)	Terman-Binet	15	8–21	High-grade defective to average	73	
Scott (*151*)	Terman-Binet	35	3–24	High-grade defective to very superior	88	−2.0
Bond and Appel (*14*)	Terman-Binet	48	6–14	High-grade defective to superior	85	+8.2
Jenkins and Ackerson (*75*)	Terman-Binet	57	5–29	Idiot to very superior	75	−2.3
Brown, Jenkins, and Cisler (*19*)	Stanford-Binet	108	2–10	Defective to bright-normal	77	−2.34

postencephalitic core (*166*). Wallin (*168*) implies that ". . . conduct disturbances that have followed in the wake of measles, scarlet fever, diphtheria, rheumatism, or influenza, sometimes with choreiform movements, may well represent the residuals of an undetected virus infection of encephalitic character." The real value in considering encephalitic children is that the condition points up the possibility that perceptual, conceptual, behavioral, and learning disorders may be the prime resultant of organic involvement and not necessarily motor disabilities. The viral encephalitides (*152*) which may or may not or only occasionally involve the central nervous system become referents for patterns of behavior seen and not easily understood.

In summary, a few words relative to treatment are in order with a recognition that medical aspects are primary and beyond the scope of this paragraph. Bond and Appel (*14*) demonstrated the value of a restrictive, but routinized regimen. Generally speaking, specialized facilities are few and perhaps more utilized during the acute stage. With the presence of a lowered tolerance, hyperexcitability, and hyperkinesis, ordinary situations are likely to produce the same effect as observed with other "brain-injured" children.

ORTHOPEDIC IMPAIRMENTS

The term orthopedic impairment was formerly synonymous with the phrase "crippled children" and any use of the latter phrase meant muscular paralysis and bone disorder. In fact, "crippled children" often has reference to conditions as varied as ear and eye defects, rheumatic fever, and epilepsy. To obviate problems in terminology, orthopedic impairment will be used to cover the neuromuscular disabilities singled out for attention in this section. Reviewing Lesser and Hunt's (*100*) figures for incidence shows approximately one million orthopedically handicapped children by national survey. Regardless of definition of the specific condition and its measurement, it is obvious that not all of these would constitute special psychological problems. Among the more prevalent conditions are cerebral palsy and poliomyelitis, which necessitate closer study.

Cerebral Palsy

The term cerebral palsy may include a group of conditions which have different manifestations, but which have in common a lesion of the brain affecting motor control; the manifestations depending upon the location and extent of the lesion. Perlstein (*135*) states, "Cerebral palsy, by definition, is a condition characterized by paralysis, weakness, incoordination, or any other aberration of motor function due to a pathology in the motor control centers of the brain. It must be differentiated from (1) . . . poliomyelitis, . . . from conditions in which the cerebral involvement does not cause motor dysfunction . . . children who are slow in motor development because of mental deficiency or because of central deafness or blindness. . . ." This definition embraces the essential nature of the condition, but needs to be supplemented. Denhoff's (*39*) listing of other characteristics as convulsions, mental retardation or deficiency, vision, hearing, or perceptual problems, speech, behavior, and emotional disturbances enhances the true implication of the condition.

Etiology. Perlstein (*135*) states that "anoxia and cerebral hemorrhage are the two most important causes of cerebral palsy." Agreement exists that the factors which precipitate damage to the brain may occur during the prenatal, paranatal, and postnatal periods. Among these factors are (1) genetic influences, (2) in the prenatal period—anoxia, infection, cerebral hemorrhage, metabolic disturbance, malnutrition, and incompatibility between the foetal and maternal Rh factor, (3) in the natal period—vascular damage and trauma, and (4) in the postnatal period—infections, tumors, accidents, and poisons.

Incidence. The incidence of cerebral palsy approaches that of poliomyelitis and in many ways may exceed it. Estimates of individuals under twenty-one years of age are about 285,000 (*100*). In terms of prevalence rates Phelps (*140*) reports there will be approximately seven cerebral palsied individuals of all ages per 100,000 population; a Schenectady County survey (*78*) by the New York State Department of Health revealed the prevalence of 152 cerebral palsied persons of all ages, per 100,000 population, or 5.9 per 1000 births. The Schenectady survey records a lesser prevalence under five years of age than over five years of age. This is presumed to be a function of the difficulty in detecting cerebral palsied cases during infancy and the preschool period.

Types. As previously mentioned, manifestations of the brain lesions may take many forms. Phelps' (*138*) classification reflects this fact and he employs categories to describe the clinical groups found in cerebral palsy. These are as follows with some attempt to correlate the neuromuscular disorder with the site of the lesion.

Spastic paralysis is a consequence of lesions in the motor cortex, in the pyramidal tract, and in other areas at the base of the brain. Spasticity reflects a loss of voluntary control and contraction on the slightest stimulation. Spasticity affects the lower extremities more severely. Motor signs may be varied and represented by (1) the arm pressed against the body with forearm bent approximately ninety degrees to the upper arm and flexion of the fingers, (2) toe-walking, (3) crossed-leg propulsion or "scissor gait," (4) dragging of the involved leg, and/or (5) wide-based gait with outstretched arms. Phelps (*138*) also defines a flaccid paralysis which may or may not accompany spasticity and essentially gives rise to complete lack of function.

Athetosis may result from lesions to extrapyramidal motor tracts and is characterized by irregular involuntary movements of the involved parts such as the face, feet, hand, shoulders. Extreme incoördination is observed in their lurching gait; often muscles of the throat, tongue, and diaphragm are seriously involved, resulting in drooling and speech difficulties. Emotional stress exaggerates the condition.

Ataxia is characterized by disturbances of balance, coördination, and control of voluntary movement because of damage to the cerebellum, cerebellar tract, or the eighth cranial nerve.

Mixed lesions resulting from diffuse brain damage as well as motor signs described as *tremors* or *rigidity* may also exist as discrete categories.

The above outline does not include the possibility of involvement according to number of muscle groups. These are part of the motor picture and vastly important for descriptive purposes as well as therapy. Motor involvement may be one limb or set of muscles, *monoplegia;* one side of the body, *hemiplegia;* both sides of the body, *diplegia* or *quadriplegia;* only the lower limbs, *paraplegia;* or three extremities, *triplegia.*

The broad concept of sensory and neurological disorders is aptly demonstrated in the multiple handicapping of the cerebral palsy child. Lesions in the brain or the brain stem can be expected to be associated with other disabilities or defects. In fact most, if not all, of the signs enumerated as the common symptomatology for central nervous impairment may appear. Perlstein and Barnett (*136*) noted a relatively large percentage of convulsions in their cerebral palsy survey: among 1000 consecutive cases seen in a pediatric neurological service, 50 percent of all spastic patients and 15 percent of all athetoid patients had convulsive seizures. Earlier, the New Jersey Study (*74*) reported a similar relationship between convulsions and cerebral palsy though not to the same extent as Perlstein and Barnett. Of a total of 1265 individuals only 9 percent had a history of seizures; the order of frequency, according to type of motor involvement from greatest to smallest, was rigidity, ataxia, spasticity, and athetosis, respectively.

Likewise cerebral palsy may be accompanied by other sensory defects. Table 60 gives an analysis of the incidence of sensory defects as well as speech impairments found among 1300 cerebral palsy cases. This shows that speech impairments occur quite frequently; normal speech and hearing are more the exception among athetoids than spastics. The "questionable" category highlights the difficulties attendant upon diagnosis and broadcasts inherent problems in any evaluation of these cases.

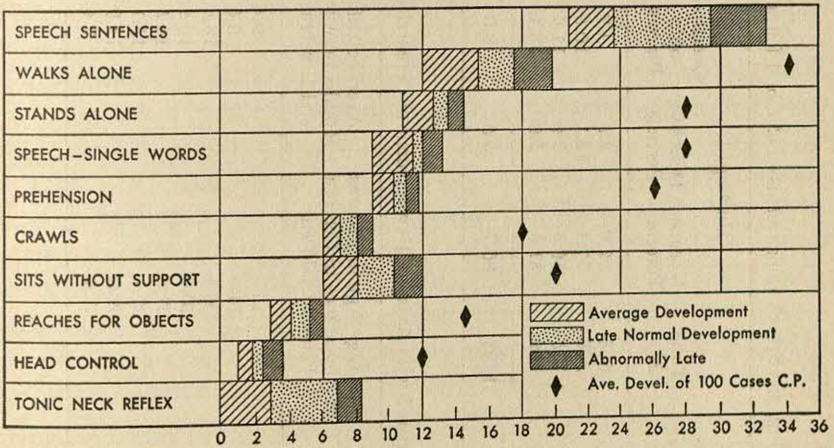

FIGURE 15. Normal Development Compared with Average Development of 100 Cerebral Palsied Children. (After Denhoff, 39.)

Early growth and development. Even though the diagnosis of these neuromuscular disabilities is primarily a medical one, opinion is practically unanimous that developmental progress offers significant cues. Phelps (*141*) says "In most instances the diagnosis is best made by careful periodic developmental appraisals of the infant."

In spite of the relative importance of developmental evaluation, comparative data on the rate of growth are limited. Denhoff (*39, 40*) has set up a brief developmental scale, and using responses of one hundred cerebral palsied has drawn up comparisons. His findings are presented in Figure 15 and Table 61. Both of these are self-explanatory and bring to a focus the apparent overall developmental retardation.

Table 60. Analysis of Vision, Hearing, and Speech Impairments of Cerebral Palsied Children (*36, 74*)

	Vision				Hearing				Speech		
Type	Total *N*	Normal Percent	Defective Percent	Question-able Percent	Total *N*	Normal Percent	Defective Percent	Question-able Percent	Total *N*	Normal Percent	Defective Percent
Spastic	641	72.7	22.4	4.8	638	92.6	2.5	4.7	606	47.0	51.9
Athetoid	328	79.5	17.3	3.0	328	77.4	12.1	10.3	310	11.2	88.7
Rigidity	176	71.0	17.0	11.9	175	86.2	2.2	11.4	158	27.8	72.1
Ataxia	152	57.2	30.9	11.9	152	81.5	5.2	13.1	150	14.6	85.3
Totals	1297	72.4	21.4	6.2	1293	86.7	5.3	8.0	1224	32.0	68.0

Table 61. Normal Development Compared with Average Development of Cerebral Palsied Children (*39*)

Developmental Item	Age in Months, Late Normal Development	Average Age in Months of Appearance in Cerebral Palsied Children	Average Difference in Months Between Normals and Cerebral Palsied	Number of Cases in Study
Head Control	3	12.4	9.4	74
Reaches	5	14.5	9.5	26
Crawls	8	26.4	18.4	21[a]
Sits without support	10	20.4	10.4	73
Stands alone	13	27.5	14.5	43
Speech—single words	12	27.1	15.1	65
Walks alone	18	32.9	14.9	57
Speech—2–3 word sentences	30	37.4	7.4	39

[a] Thirty-three other cerebral palsied children never crawled.

Perlstein and Barnett (*136*) supply valuable clinical cues which tend to correspond with the observation of overall retardation in motor development. They indicate that (1) cerebral palsied infants with upper extremity involvement may show delay in prehensile behavior because of lack of voluntary movement or incoördination, and that (2) infants with cerebral palsy may be completely unable to sit, stand, crawl, and walk, or be late in performing such acts of locomotion or perform them in a manner characteristic of the type of motor disability. "A mildly athetoid child may progress more rapidly than a more severely spastic child, although a spastic child usually develops more functional ability in an extremity than does an athetoid child having a comparable degree of involvement."

Intelligence and learning. The foregoing material readily supports the contention that psychological evaluation in cerebral palsy is a complex problem. Specific problems involved have been discussed by Strothers (*163*) and Meyer and Simmel (*119*) and other psychologists. Strothers outlines steps basic to adequate psychological appraisal of children with cerebral palsy. These are (1) specific statement of the reason for referral, (2) establishment of optimum testing conditions, (3) evaluation of the sensory and motor equipment of the child and determination of a mode of communication, (4) selection of examination techniques, and finally (5) estimates of the reliability, the validity, and the etiological, therapeutic, and prognostic significance of the findings.

Although not so important here as in the clinical situation, the significance of the referral cannot be underestimated. It can serve not only to give scope to the psychological examination, but also it is the springboard from which evaluation begins; it is the basis for cues or hypotheses which the clinician will attempt to answer. Optimum testing conditions as well as the functional level of seeing, hearing, and motor coördination are basic for any examination. With cerebral palsied children the chance of having additional sensory defects has already been shown. The point is not that these necessarily affect current perceptions, but they may operate as disabilities to achievement in situations and areas unrelated to the testing session.

Evaluation is seldom independent of speech and motor responses and with these neuromuscular involvements this becomes a major obstacle, especially in regard to using standardized tests. On this point samples ". . . indicate that, in ages over six, standard tests can be applied in the majority of cases. This does not imply that the results are necessarily reliable or valid measures of intelligence in these cases but merely that the child's physical condition does not preclude the administration of these tests" (*163*). Alongside the limitation that physical factors place on intelligence test performance are limitations imposed on the cerebral palsied because of restriction in learning experiences. This is to suggest that handicaps automatically mean a deprivation in terms of common experiences.

In spite of the idea that the intelligence test is for use on a normal population, its application to the cerebral palsied can be justified on several grounds. Tests usually can be adapted or answered through alternative modalities and fundamentally some idea of correspondence or discrepancy from the normal population becomes basic to educational planning for cerebral palsied cases.

Generally, lower intelligence test results have been obtained for samples of cerebral palsied children. Fernald and Arlitt (*55*) estimated a mean intelligence quotient of about 69 for 27 birth injury cases. Schroeder's (*150*) results indicated that the infantile cerebral palsy cases performed lower than "birth-injured" children without palsy or other children with behavior disorders. Doll, Phelps, and Melcher (*46*) found a mean intelligence quotient of about 66.4 for 11 cerebral palsied children.

More current investigations have been directed toward answering these questions: what is the intelligence quotient distribution for cerebral palsied children and to what extent is this related to the type of neuromuscular involvement. At one time Phelps (*138*) asserted that approximately 70 percent of these cases had mentality unaffected by brain damage. McIntire's (*114*) figures for 500 cases resulted in the following data: superior intelligence, 4.0 percent; high average, 8.8 percent; average, 25.0 percent; low average, 7.6 percent; dull normal, 11.0 percent; borderline, 5.8 percent; feeble-minded, 27.6 percent; undetermined, 10.2 percent. In this connection it is well to point out that McIntire showed that mental deficiency occurred more, almost twice as much, among right-side hemiplegics as among left-side hemiplegics and likewise more for quadriplegics with right-side involvement than left-side involvement. For 38 children, ages 2–1 to 11–0 (median chronological age of 4–4), using the Stanford-Binet, Burgemeister and Blum (*22*) found 50 percent of this group seriously retarded, and a greater range of intelligence quotients among the spastics than among the athetoid, ataxic, or rigidity groups. Mental defectives were found in all groups. Wolfe (*179*) with a small group estimated that 44 percent of his group were retarded.

Comparative figures for other studies are presented in Table 62. Little comment is required for Table 62 except to note the somewhat unanimous findings. The New Jersey Study (*74*) is impressive because of its completeness as well as the number of cases. There were involved 1000 cases classified as follows: 522 spastics (130 right hemiplegias, 120 left hemiplegias, 115 paraplegias, 50 triplegias, 107 quadriplegias), 249 athetoids, 129 ataxics, and 100 rigidities. The mean intelligence quotients for males and females were 68.5 and 68.6, respectively. Approximately 49 percent of the New Jersey Study cases had intelligence quotients under 70. Analysis of their comparative figures on types of neuromuscular disabilities show no statistically significant differences between major groups, that is, spastics, athetoids, ataxics, and rigidities. Furthermore, athetoids and spastics tend to rank higher than ataxics and rigidities. Within the spastic group significantly inferior performance was seen for the quadriplegics. Jewel and Wurstein's (77) findings are essentially in agreement with poorer intelligence test performance, mean intelligence quotient of 60. The education of cerebral palsied children is beyond the stated purpose of these chapters, but the above findings do demonstrate that a large proportion of these children either will not benefit from formal education or, in a more positive manner, are drastically in need of special education.

TABLE 62. Comparison of Studies on Intelligence Levels of Cerebral Palsied Children

	Asher and Schonell	Heilman	Holoran	Miller and Rosenfeld
	(*1*)	(*70*)	(*73*)	(*121*)
Intelligence Level	Percent of 340	Percent of 178	Percent of 133	Percent of 261
Mentally defective	47	47	36	49
Borderline dull	28	30	38	25
Average and above	25	23	26	26

	Strong Memorial Hospital	New Jersey Study	Crowell and Crowell
	(*131*)	(*74*)	(*33*)
Intelligence Level	Percent of 90	Percent of 1000	Percent of 61
Mentally defective	43	49	51
Borderline dull	30	23	31
Average and above	26	28	18

Generally speaking, the majority of psychological research on cerebral palsied children has revolved around the meaning of psychometric patterns and how closely the distribution of intelligence scores approximates those of normal children. Reliability, and conversely, unreliability or shifts in intelligence quotients are a result of many factors or errors: errors inherent in the measuring instrument, errors in judgment on the part of the clinician or examiner, and lastly, errors which fail to include fluctuations in ability due to maturation, and the functional level of vision and hearing. Empirical evidence on reliability is limited. McIntire (*115*) found confirmatory evidence for his classification of cases through reëxamination, observation, and agreement with other examiners. Asher and Schonell (*1*) found no significant difference in mean test-retest scores for twenty cases. Some variation, however, was noted. Bice and Cruickshank (*11*) indicate that one of the authors examined records of 153 children for first and second examinations. The average chronological age at the time of the first examination was 6–3 and for the second examination 9–0. Average intelligence quotients for the test and retest were 68 and 65, respectively. All cases which showed a gain or loss of ten points were further analyzed. Of those gaining the most pronounced change was from borderline to dull normal classification. For 24 of 33 cases the initial examination suggested lower results might be obtained on a retest. Maurer (*112*) reports a test-retest correlation based upon the 1937 version of the Stanford-Binet of $r = +0.90$ for a group of 85 cerebral palsied children. No data were given about the length of the testing intervals or about the number of examiners involved. Crowell and Crowell (*33*) selected cerebral palsied cases reflecting all possible motor disabilities, muscular involvements as well as additional syndromes, such as microcephaly. The total group had an average test-retest interval of 30 months. These cases had a total of 159 examinations, ranging from 2 to 6 per individual, which were based upon three instruments, the Stanford-Binet or Composite Binet (*79*), 49 cases, the Cattell Infant Intelligence Scale, 11 cases, and the Merrill-Palmer Scale of Mental Tests, one case. Seventeen different examiners tested 46 of these cases and the same examiner 15 cases. It is obvious that the cerebral palsied sample was highly skewed and roughly 50 percent of this group were severely retarded. Approximately 51 percent of the total group deviated within ±5 intelligence quotient points of the initial test score and approximately 75 percent deviated within ±10 intelligence quotient points of the initial test score. Pearsonian coefficients of reliability, based upon mental ages, with confidence limits at the 1 percent level are as follows: for the group with the average test-retest interval of 15 months, $r = +0.98$ with confidence limits of $+0.94$ and $+0.99$; for the group with the average test-retest interval of 43 months, $r = +0.78$ with confidence limits of $+0.52$ and $+0.91$; and for the total group with an average test-retest interval of 30 months the $r = +0.92$ with confidence limits of $+0.87$ and $+0.95$. Crowell and Crowell (*33*) concluded that ". . . the mental age obtained on the initial examination of a cerebral palsied child can be accepted as highly reliable for ordinary diagnostic purposes, . . ." They state that the clinical psychologist with adequate training and experience can evaluate with a high degree of reliability the potentialities of cerebral palsied children.

Closely bound with the concept of reliability is the concept of validity. At the same time the picture is confounded by the fact many reasons may exist to account for the psychological picture obtained. In light of the interrelationship between validity and the need for differential diagnosis, there may be some point in examining the factors which give an incomplete picture of psychological status. It has already been stated that standardized tests all too often may give an incomplete picture because of associated sensory defects, emotional lability, speech difficulties and the lack of motivation present in children with brain injuries. Furthermore Dolphin and Cruickshank (*47, 48, 49*) in a series of studies with cerebral palsied children have demonstrated and corroborated the findings of Strauss and Lehtinen (*161*), Werner and Strauss (*172, 174*), Werner (*169*), and Cotton (*30*) on the presence of perceptual disturbances in figure-ground relationships, tactual-motor, visual-motor, and concept-formation tasks. These factors obviously affect the validity of any judgment relative to prognosis and educability for the cerebral palsied child. The mere fact that evaluation is confounded by a multiplicity of difficulties suggests that the question of validity cannot be easily dispensed with nor readily estimated. To a large extent some of the factors mentioned earlier, such as sensory defects, can be determined; more data are needed on the problem of perceptual impairment. Cruickshank (*34*) states that current investigations are being carried out to determine the incidence of perceptive impairment, the universality of perceptive impairment in a single child, and the variability of such perceptive psychopathology within cerebral palsied groups.

Psychological status and performance may be related to organic brain disease, childhood autism, mental retardation, or just cerebral palsy. Clinical opinion suggests that differences exist relative to undifferentiated mental deficiency, mental deficiency associated with brain disease, and mental deficiency associated with organic brain disease and cerebral palsy. This brief discussion cannot hope to clarify the distinctions, but serves only to highlight the fact that awareness of the overlap may improve judgment and hence, validity. According to Perlstein and Barnett (*136*) for simple mental deficiency, ". . . developmental tests show equal retardation in all spheres (speech, social, motor, and adaptive) . . . motor tests may be characterized by a clumsiness that might be considered normal in a child of younger age. They may show a failure of or a delay in response to all forms of stimuli . . . Facial expression in such a child is typically apathetic; . . . no evidence of muscle weakness or aberration of muscle function . . . Convulsions are no more frequent in these children than in normal children." For mental deficiency related to organic involvement, but not cerebral palsy, less clear a delineation with respect to clinical signs is seen. A higher incidence of convulsions, feeding and behavior problems, as well as uneven developmental patterns, but with less delay in motor functions have been mentioned. The diagnosis of mental retardation in the presence of cerebral palsy presents even more difficulty and seemingly ". . . can be made only after careful evaluation of the signs and symptoms referrable to motor dysfunction."

In the last analysis validity becomes a problem where so many factors enter to cause uncertainty. In spite of these, other measures are available for enhancing accuracy of judgment. Among these are detailed observations, interim comparisons of progress reports, and ratings from those in contact with the particular child.

The question of educability as well as the ingredients of special education programs for the cerebral palsied child are too complex for discussion here. It may suffice, however, to report on variables which seem associated with the educative process and assist in determining prognosis. Strothers (*163*) emphasizes that a minimal level of intelligence, drive, and coöperation, and the nature of the central nervous system damage are the important variables in determining response to treatment.

In evaluating the influence of intellectual level of cerebral palsied children on therapeutic progress, Lamm and Fisch (*84*) gathered independent ratings from physical therapists, occupational therapists, speech therapists, the orthopedist, schoolteacher, neurologist, pediatrician, and psychologist. Preliminary observations revealed that the majority of children showed slight to moderate progress in treatment, with the remainder distributed between greater than average progress or no progress. The group making good progress had a mean intelligence quotient which was 22 points higher than the group making no progress. Lack of progress with positive signs, such as a high intelligence rating, revealed interference associated with social and emotional factors. With severe involvement the majority of these children showed poor progress. Dunsdon (*52*) stressed the need for an intelligence quotient of roughly 85 to insure benefits from special education with academic goals. Denhoff and Holden (*41*) followed up 35 preschool cerebral palsied children four to six years later to determine factors operative in successful school adjustment. The triad most important for successful adjustment in regular school was mild handicap, average intelligence, and a "good" family rating. Success in the special class was accompanied by moderate handicap, borderline intelligence, and a "fair" family score, while a "good" adjustment with a home teacher was associated with severe handicapping, average to borderline intelligence, and a "good" to "fair" family. Those children who were better adjusted invariably had family understanding and acceptance—the "good" family as measured by ratings. Poor adjustment was associated with "poor" family ratings.

Meyer and Crothers (*118*), in reporting on the psychological evaluation of cerebral palsy patients studied for periods of ten years or more, comment that their predictions on how far the child could be expected to adjust to the ordinary demands of his life situation "have been standing up rather well." Misjudgments and lack of accuracy seemed related to

> . . . cases where the predictions have been too pessimistic. These were some of the children with extrapyramidal difficulties, who as very small babies (up to 18 months) appeared more impaired in their reasoning ability than they turned out to be. Having very immature motor activity and no speech, they often did not give any signs of appreciable comprehension . . . There have been cases where the predictions were too optimistic, and this concerns an especially interesting group. We have found that after acute infections and trauma to the nervous system, many children recover surprisingly well from the acute phase of the illness, and may in spite of acquired motor impairment appear mentally as alert as before. Many of these children turn out to have considerably more difficulties in general adjustment and learning than could be predicted

in initial examination . . . the age of onset is important to consider. The younger the child at the onset, the more impairment can be expected; older children have different and more varied ways of adjusting to their own shortcomings in learning ability than younger ones who have to make all their new adjustments with impaired tools . . . Then there is a small group of patients in which intellectual development has been poor and was predicted so. Still, in spite of marked disabilities in this direction, the families have been able to make better arrangements and social adjustments for the children than judged possible before.

Poliomyelitis

Definition. Among conditions caused by neurotropic viruses is infantile paralysis, or acute anterior poliomyelitis; the latter name reflecting its predilection for the anterior horn of the spinal cord. The poliomyelitis path seems to start from the mouth and upper respiratory tracts. The movement of the virus from the oropharyngeal entry to the lymphatic system, then to the blood stream has given substance to the idea that polio antibodies or vaccines can stop the virus in the blood stream. If this action does not occur the virus heads for the nervous system. Evidence does indicate that other routes may provide direct access to nerve structures. If the virus gains direct access, then immediate infection of the central nervous system may occur. If a susceptible person is sufficiently exposed, either (1) silent infection, (2) abortive poliomyelitis, (3) nonparalytic poliomyelitis, or (4) paralytic poliomyelitis may occur. The relative order of frequency corresponds with the order of listing.

Clinically paralytic poliomyelitis may be (1) the spiral form in which weakness of the neck, abdomen, trunk, diaphragm, thorax, and extremities appears, or (2) the bulbar form in which the motor function of the cranial nerves may be involved with or without dysfunction of the centers of respiration and circulation, or (3) the bulbospinal form combining features of the two already mentioned forms, or (4) the encephalitic form in which tremors, disorientation, and irritability may appear (*159*). As mentioned the virus seems to have a preference for the anterior horn of the spinal cord, thus interfering with or possibly destroying neurons responsible for motor functions.

Incidence. Poliomyelitis is a common contagious disease whose incidence is steadily rising. A national total for the United States of 38,741 new cases was reported for the year 1954, an attack rate of 24 cases per 100,000 individuals. Statistics for the age composition of polio cases show that children of ages five and six were most often involved; persons in the middle twenties showed a secondary peak in admission rates. Within the past decade a noticeable shift has taken place in the age composition of new polio cases. In 1944, 11.7 percent of new cases were among patients aged 20 years or older. During the decade 1944–1954 this proportion increased steadily to 24.5 percent. Over the same period, there was a decline from 64.9 percent to 50.7 percent for patients aged 5–19 (*145*).

Psychological characteristics. The attempt to determine the psychological characteristics associated with polio must take into account the fundamental question of whether the consequences are a result of the disease, or the type of hospitalization and convalescent care, or possibly the crippling condition itself. Lastly, the social attitudes of others cannot be eliminated, for these play an extremely significant role in future social and vocational adjustment. All these aspects form a somewhat tangled skein and are, in the thinking of some, inextricably interwoven. Most assuredly it is difficult to say which factor is most important for observed psychological changes. The task perhaps is to present and structure the field as it exists relative to the psychological aspects of poliomyelitis and presume that further research will delineate the exact relationships.

Intelligence. Studies dealing with the effects of polio on intelligence and intellectual functioning do not suggest that deviations are to be expected just because of the disease process. These conclusions are dependent upon and may reflect the type of poliomyelitis virus as well as the extent of involvement. Findings are consistent for the most part; variations have been observed from a mean intelligence quotient of approximately 83.8 in Fernald and Atlitt's (*55*) investigation of 62 polio cases, to a mean intelligence quotient of about 92 which Lee (*87*) obtained for a poliomyelitis group. Gordon, Roberts, and Griffith (*64*) found no relationship between intelligence and age of onset of the disease or signs suggestive of cerebral involvement at the onset of the disease. A mean intelligence quotient of 103.9 was obtained for their group of 98 children ranging in age from four to sixteen.

Phillips, Berman, and Hanson (*142*) studied 101 children who had poliomyelitis and their paired controls, holding age, sex, intelligence, socioeconomic status, school, grade, and examiner constant. Mean Stanford-Binet intelligence quotients for the clinical and control groups on pretest and posttest showed a mean loss of 1½ points for the clinical group and a gain of 2 points for the controls. The mean loss, contributed mostly by the younger boys, was statistically significant. Barker (*3*), in this connection, reminds us that ". . . tests of statistical significance are not also tests of psychological significance . . ." and questions ". . . whether a mean loss of 1½ points (or 3½ points) in I.Q. in a group of 101 subjects has behavioral significance in the world of children. . . ." For an older group, ages 16 to 43, Lowman and Seidenfeld (*107*) state that no "marked evidence of mental impairment" was seen. Pintner et al. (*144*) in summarizing studies on intelligence of crippled children conclude ". . . that children crippled by poliomyelitis are, on the average, superior mentally to other crippled children." Although the basic point of view is confirmed by Wallin (*168*), he gives a slightly different interpretation relative to the intellectual status of polio victims. Wallin states that "These limited surveys seem to show that the typical polio case possesses average or nearly average intelligence. However, a larger ratio of minus than plus deviates exists among polios. An appreciable proportion of these children are subnormal mentally, but the subnormality is primary and not secondary to the infection except in the few cases in which the 'silent' cortical areas are involved." The last statement serves to focus attention on the possibility of cerebral involvement and the concomitant "brain-damage" syndrome. Children with cerebral involvement or *polioencephalitis* have been reported (*117*) to show difficulties with visuo-motor tasks and spatial relationships, as well as to exhibit impaired comprehension.

Personality. Published studies on personality and its alteration with polio are not well integrated. For the most part, they represent isolated studies and viewpoints on the general problem. The gamut found ranges from stressing a "constitutional and personality selectivity" for poliomyelitis, Draper (*50*), to demonstrating that poliomyelitis is not selective on a personality basis and need not have any behavioral effects, Phillips, Berman, and Hanson (*142*), Harris (*67*), and Lowman and Seidenfeld (*107*).

Although the majority of studies relative to personality characteristics have been with children, attitudes about polio have been elicited more readily from older individuals. Emotional repercussions of the disease have been described by Young (*180*). In addition to giving material about his subjects, the findings also serve to depict the type of sociopsychological environment that surrounds the polio case. Young questioned 17 adults, ages 17–30, of whom 13 were females, about a year after their illness. Significant findings were: (1) little anxiety, or marked reactions reported for the acute phase but more concern for relief from pain; (2) a fairly uniform response that the family and friends of the patient were "terribly upset and fearful"; (3) psychological difficulties appeared more likely to develop after discharge or recovery from the acute phase; and (4) complaints of weakness and fatigue which might be accompanied by irritability. Young suggests that anxiety, not seen during the acute period, might have been repressed to emerge during the convalescent state to complicate personality adjustment.

Even among children certain social and emotional characteristics have been associated with the disease process and qualitatively in line with Young's observations. Phillips, Berman, and Hanson (*142*) state that ". . . the mothers of approximately two-thirds of the clinical group reported that their children had been restless, irritable, impulsive, and given to easy fatigue." It is significant that the authors, nevertheless, suggest that ". . . the mothers' reports may reflect their own inadequacy and apprehension over the convalescent child's behavior, thus in a measure activating or contributing to unadjustive behavior in the children." Copellman (*29*) analyzed the behavior of 100 children, ages 1½–15, who had been hospitalized for polio and reported that 38 of these had problems severe enough to necessitate outside help. In addition, behavior problems such as refusing to eat, enuresis, temper tantrums, crying, irritability, fatigue, and hypersensitivity appeared. Even after 7 months, signs of instability, particularly hypersensitivity, were apparent. Meyer (*117*) likewise agrees with this overall picture of instability. After intensive investigation of 52 children, ages 1½–14, who had passed the acute stage of polio, she reports that all the children had behavior problems. Moreover, those of preschool age who had moderate or serious physical disabilities continued to exhibit problems of development for some time after having polio. Interestingly enough, school-age children did show problems after going home. Most of the children in the study were reported as improved by the end of a year's time.

Harris (*67*) attempted to answer the fundamental question which has developed on the basis of the foregoing studies and existing data: ". . . whether such personality effects of polio relate to the kind of child who is particularly susceptible to the virus, to the disease itself, or to the conditions of strain and isolation imposed by the disease." Depending upon ratings, he compared 58 postpolio children, subjects previously studied by Phillips, Berman, and Hanson (*142*), with controls.

Results indicated that (1) polio apparently had "little direct lasting effect" on behavior or personality, (2) one statistically significant personality difference relating to "more unself-disciplined, yielding to whims, erratic" behavior emerged which Harris suggested was associated with the indulgence of a presumably weakened child, and (3) evidence could not be mustered to support the hypotheses linking polio to certain personality types or implying that polio tended to accentuate personality weaknesses latent in the child's structure. Although no relationships with type of poliomyelitis, period of hospitalization, and maximum temperature were evident, Harris does emphasize these findings were based upon postpolio children who had few crippling effects as an aftermath of the illness.

SYSTEMIC CONDITIONS

Cardiac Conditions

Definition. The generic term cardiac condition includes any kind of heart disease or deformity. The reference here is to "(1) children who have a heart murmur or some other abnormal physical finding but in whom, at the time, a definite diagnosis of heart disease cannot be made; these children really do not have heart disease but, for the time being, are given the diagnosis of possible heart disease; (2) children with congenital defects of the heart; and (3) children who have had rheumatic fever whether or not they have heart disease" (*20*). Obviously these all constitute medical problems, but it takes relatively little imagination to recognize the psychological impact which accompanies any involvement of the cardiovascular system, and particularly the heart. Just superficial consideration of the first category, those with "functional, innocent, or accidental" heart murmurs, points up the possibility that such a diagnosis not only is likely to evoke anxiety on the part of parents, but also can, if not tempered, produce a cardiac invalid and a psychological cripple. Even though such a consequence can be "iatrogenic," it is equally apparent that ignorance accompanied by restrictions lays the emotional bed for later hypochondriasis and invalidism.

The origin of congenital heart disease is obscure; although the role of heredity has not been clarified, maternal disease has been linked with defects of the heart. In fact, a clear association has been demonstrated between rubella, German measles, in the first trimester of pregnancy and congenital heart disease, cataracts, and mental deficiency (*101*). The incidence of congenital heart defects declines with age and the continuum of severity is such that some children show virtually no interference because of the disease. The opinion has been stated that the majority of children of school age who had or have congenital heart disease are not handicapped (*20, 102*). Notwithstanding the fact that the pediatric problems involved and the therapeutic management of cardiac conditions is beyond this discussion, cognizance must be taken of the fact that surgical corrective procedures exist for congenital heart conditions. Lyons and Kaplan (*108*) offer the following principles of treatment which encompass the latter point and are important relative to the psychological growth of children with congenital heart disease: "Owing to rapid advances in the diagnosis and surgical treatment of these anomalies, an attitude of guarded optimism should be adopted. A level of life as nearly normal as possible should be encouraged because untold psychologic trauma is imposed by unnecessary restriction. . . . Rigorous restriction of physical activities is not indicated in many cases, because children soon learn their own capacity for exercise."

Rheumatic fever. One of the major causes of chronic illnesses and death among children is rheumatic fever. Incidence figures vary, but it is commonly considered a disease associated with the lower socioeconomic levels with concomitant poorer housing and nutrition. Surveys have shown the infection to be common and to have some correlation with geographical region. The disease itself derives its name from the assumed elevated temperature and rheumatic manifestations, that is, the acute involvement and inflammation of the joints. The consensus of medical thinking (*83*) indicates that rheumatic fever is precipitated by scarlet fever or upper respiratory infection due to group A *beta-hemolytic streptococci*.

The clinical signs and course of the disease contribute to a more complete understanding of the psychological ramifications resulting from rheumatic fever. What is most important is the fact that the disease is often difficult to diagnose, is recurrent, and may attack the heart, producing permanent heart damage. The medical management alone presents problems which are not exactly conducive to the best psychological development. The clinical need to minimize heart damage means prolonged hospitalization, complete bed rest, and furthermore, often a period of supervised convalescence. Inherent in such a medical regimen is anxiety which, because of its real nature, may never be completely resolved (*80*), long periods of deprivation from familial surroundings and interactions, restrictions in physical activities, and even then, no assurance of restoration to a level of activity once possessed or apparent in one's peers.

The meaning of hospitalization and convalescence naturally varies with the individual. Several excellent general studies on emotional reactions of children and their families to illness have been published. Different conclusions are in evidence especially in regard to the factor of separation. Separation is probably the most serious aspect accompanying chronic illness necessitating hospitalization. It probably is only one of a series of emotional reactions to an illness, and in addition, the factor of separation has been noted to be more severe and persistent among preschool age children and children with previously existing limited capacities for adaptation (*146*). For a group of cardiac children, Taran and Hodsdon (*165*) observed that those with adjustment problems in the sanitorium also had problems of adjustment in their home environment. Langford (*86*) has called attention to the need for understanding the meaning of the child's illness as reflected in his emotional reactions to the hospital surroundings. Attention, support, and reassurance not only help to alleviate the child's feelings of guilt relative to being responsible for the illness, but also to eliminate rebellious behavior which may be a reaction formation against fears of permanent injury or to combat chronic invalid reactions because of feelings of inadequacy or hopelessness. Prugh, et al. (*146*) suggest that reactions to hospitalization can be modified and reduced, both in terms of incidence and severity, through daily visiting periods, early ambulation when medically possible, and adequate psychological preparation for hospitalization.

Over and beyond the ideas mentioned, Brazelton, Holder, and Talbot (*15*) outline significant dynamics that appear in the hospitalization process with respect to the mother. In their study of a group of children with rheumatic fever for a period of 1½ years, the prime factor in the total situation appeared to be the mothers' relationships with their children prior to the illness. Mothers interpreted the recommendation for hospitalization according to their own needs, that is, if a neurotic dependency need was present, mothers were unwilling to hospitalize the child. In convalescence, mothers who had kept their children at home seemed to maintain a highly protective attitude. Although Brazelton, Holder, and Talbot felt that the problems appearing when the child returned home were essentially reactivations of old parent-child conflicts, there was also produced with a renewed intensity ambivalence over recovery and return to normal activity versus fear of recurrence and maintenance of physical restrictions.

Although both the attitude of the child and the family have import for personality patterns, few independent studies on the personality structure of cardiac children exist. Crowell (*32*), whose major goal was to analyze the general psychosomatic hypothesis that significant relationships may be found between certain disease states or medical syndromes and certain personality or behavior patterns, compared the test scores of diabetic and rheumatic fever subjects. He reasoned that if the general psychosomatic hypothesis holds, differences should emerge in the test scores; if no differences are obtained, acceptance of the psychosomatic thesis with respect to these disease groups must await further confirmation. Dunbar's (*51*) assertions were taken as a point of departure. Her characteristic picture for both sets of patients appears in Table 63. This comparison demonstrates that her statements are inordinately difficult to quantify both because of the highly subjective language and the lack of quantification.

Crowell selected 53 cases of diabetes mellitus and rheumatic fever on the basis that first, their age of onset and length of illness should be such as to maximize the likelihood that they had had comparable socialization experiences, and that second, the diabetics should be assigned to good and poor levels of control as defined by medical ratings. Although no requirement was established for socioeconomic status, it constituted a point for further analysis. These patients were tested with the Rorschach, the Minnesota Multiphasic Personality Inventory, Group Form, the Taylor Anxiety Scale, and a standardized interview to determine sociocultural status. Chief emphasis was placed on the variability of the groups on these test scores with only secondary regard for the meanings of the test indices.

The following conclusions were suggested: First, Dunbar's general psychosomatic thesis was unconfirmed. Second, there was a significant tendency for rheumatic fever patients to make higher scores on the Hs, hypochondriasis, scale of the Minnesota Multiphasic Personality Inventory. Conservative interpretation suggests this may have been a statistical artifact, but on the other hand it might reflect some characteristic of individuals who are (1) severely ill, (2) on a regimen of control emphasizing attention to such danger signs as fatigue or palpitation, or (3) suffering from a kind of involvement about which there is a

Table 63. Comparison of Dunbar's Characteristic Pictures of the Diabetic and Rheumatic Fever Personality

Diabetes	Rheumatic fever
Social Relationships	
Social anxiety; superficially agreeable but self-conscious and inaccessible.	Shy, childish, and not well-liked. Good sport.
Sexual Adjustment	
Anxiety and inadequacy with homosexual trend.	Fear of sex and marriage; homosexual trend in later relationships.
Attitude Toward Family	
Marked conflict between hatred of parents and submission.	Marked (inadequately expressed) resentment toward both parents with tendency to exploit them. Identification with parent of opposite sex and homosexual trend in later relationships. Resentful of children.
Neurotic Traits	
As children, temper tantrums, fears, nightmares. As adults, nervousness and depression.	As children, temper tantrums, sleepwalking, sleeptalking, finickiness about foods. As adults, nail biting, tics, guilt and depression over masturbation, general perfectionistic trend.
Area of Focal Conflict and Characteristic Reaction	
Sexual role (ambivalence). Responsibility (dependence versus independence—vacillation).	Sexual role (identification with opposite sex). Authority (avoidance or submission).

great deal of concern in the culture. Third, there seemed to be no difference among the groups with respect to sociocultural status. It was evident, however, that the total population used in this study tended to cluster toward the lower-class end of the social-class membership scale. It is therefore possible that while rheumatic fever patients tend to be characteristic of the lower level, a medically known fact, the diabetic sample tended to show the same kind of sociocultural status only because it had been taken from the population of a rural state and induced to participate through the promise of a free medical examination.

Educational implications. Many feel that the school plays an important role since it facilitates normal growth for those who have experienced long periods of interruption. It may, moreover, guard against recurrent infections and attacks of rheumatic fever. The unique problems presented in the clinical management of the disease are reflected in the educational provisions for the child with rheumatic fever or heart disease. Educational placement and handling has been attempted through (1) regular classes, (2) cardiac classes, (3) classes with below-par children, as with the tubercular, (4) orthopedic classes, and (5) home teaching. Segregation versus normal placement constitutes a lively controversy, but relatively little has been done to evaluate fully both aspects of the question for inactive cases of rheumatic fever, particularly with regard to the effects on physical growth and scholastic achievement. Comparing two sizable samples, a regular class and a health class, Nebelung (*128*) concluded that the health class placement was more conducive for working up to or above one's mental ability. This was true even though, for his samples, the regular class had more superior children and fewer retarded children. Likewise, the health class favored a more satisfactory physical growth level. As might be surmised, recurrent rheumatic fever was related to poor scholastic achievement. The New York City Board of Education study (*24*) also discovered poorer performance relative to grade level and a considerable amount of being overage in grade.

Diabetes

Diabetes mellitus has been defined as a syndrome ". . . characterized by hyperglycemia and glycosuria and associated with abnormal metabolism of fat and protein" (*129*, p. 1275). The diabetic individual is unable to store and burn sugars in the normal manner and there is difficulty in depositing glucose as glycogen in the liver. If the pancreas does not secrete enough insulin to control the rate at which sugar is burned, there will result a high blood-sugar concentration, hyperglycemia, and the appearance of glycogen in the urine, glycosuria. Diabetes does not often occur in children; the incidence of childhood diabetes has been estimated to be from 5 to 8 percent of all cases (*129*). Along with the theory of a gene-induced causation exist ideas incorporating infection, overeating, and emotional stress.

Symptoms of diabetes mellitus in children are similar to those in adults, that is, chief symptoms are increased appetite, *polyphagia*, increased thirst, *polydypsia*, and increased urination, *polyuria*. Presenting symptoms may also include coma or stupor. Obviously the aim of medical treatment is not only normal health but also consequent maintenance of this physical status. As such, essentials of treatment include first, the *sine qua non* of therapy, insulin; second, adequate diet management; third, examination of the urine; fourth, recognition of early signs of shock and coma; and fifth, personal cleanliness (*129*). Fisher (*57*) in a ten-year study of diabetic children found the following things to be related and responsible for the emotional disturbances appearing in this group: dietary restrictions, the need for insulin injections, the constant requirement of urinalysis, the limitations in motility, as well as the overall outlook for the diabetic. Restrictive management typifies diabetic control and undoubtedly involves traumatic experiences. Consider insulin injection: it may be associated with fear not only because lack of administration means unconsciousness with convulsions, but too much insulin also means extreme reactions. The whole picture is complicated by parental tensions, hunger for food, and insecurity regarding activity, or marriage, children, and vocation for older diabetics.

Selective review of the literature on diabetic personality and behavior patterns reflects a hodgepodge of opinion and views. Crowell (*32*) examined some of these data as they related to the thesis that significant relationships may be found between certain disease states or medical syndromes and certain personality or behavior patterns. Among these studies is that of Menninger (*116*) who concluded that anxiety and depression were characteristic "diabetic personality" patterns. It should be recognized, however, that the anxiety and depression might be better explained in terms of the experience of illness, regardless of disease entity. Menninger suggests that such reactions are a function of the patient's age and severity of his disease. This finding may indicate that other factors than type of disease syndrome are of much greater importance in determining the behavioral correlates of illness.

Loughlin and Mosenthal (*106*) state that the earlier the age of onset of diabetes, the greater the tendency toward personality change. McGavin and his co-workers (*113*), on the other hand, claim to have found that the earlier the onset of the disease, the more readily it is "emotionally accepted." Fisher and Dolger (*58*) take up a third position, holding that there is no relationship between age of onset, duration of illness, or severity of diabetes and degree of general adjustment. They do conclude, however, that diabetic patients tend to have somewhat greater difficulty coping with the problems of becoming adult than do nondiabetics. The validity of these conclusions is difficult to evaluate because of the absence of control groups and the lack of quantification.

Eisele (*53*) agrees with Fisher and Dolger that diabetics tend to have more adjustment problems than do nondiabetics of comparable age, but his investigation is marred by the same methodological shortcomings. More convincing are his findings that there is a positive relationship between socioeconomic status and the degree to which the disease can be medically controlled.

Bruch and Hewlett (*21*), in a study of 21 diabetic children, say: "One finds in many diabetic children a tendency to compulsive behavior and a certain putty-like submissiveness. Other children, however, fight back, although often they fight through a passive sabotaging kind of behavior." Apparently on the basis of this complexity of characteristics, they suggest that there may be no such thing as a typical diabetic personality. Since this investigation was based on "psychological observations" of an unspecified kind, and since no control groups were employed, it is virtually impossible to assess the accuracy either of their statements about compulsiveness or passivity or of their question about the "typical diabetic personality."

The most elaborate and most influential study in this area is Dunbar's (*51*). Working with detailed case histories, she develops a "characteristic picture" of the diabetic personality, shown in Table 63, stating specific relationships between diabetes and various psychological variables. Her chief assertions may be summarized essentially in her own language as follows:

> Diabetics characteristically (1) show marked conflict between hatred of parents and submission to them; (2) exhibit social anxiety; (3) are superficially agree-

able but self-conscious and inaccessible; (4) in their sexual adjustment are anxious and inadequate, showing some homosexual trend; (5) suffer from temper tantrums, fears, and nightmares as children, and from nervousness, depression, and suspiciousness as adults; and (6) have focal conflicts in the areas of sex role, where they are ambivalent, and responsibility, where they vacillate between dependency and independence.

Although some of the conclusions relative to testing the Dunbar hypothesis have been presented in connection with the material on rheumatic fever, it should be reiterated that Dunbar's general psychosomatic thesis was unconfirmed. With respect to the diabetics themselves, no difference whatsoever was found between the patients medically rated as under "good control" and those rated as under "poor control." The hypothesis that level of control is a function of personality was unconfirmed.

Bennett and Johannsen (9) evaluated the personality structure of diabetic children by means of observations, sociological and familial ratings, and ranking techniques. The observations took place under conditions insuring a "well-regulated diabetic diet, exercise, and insulin." Assessment aimed at uncovering basic psychological variables in diabetes was based upon the Children's Apperception Test, the Michigan Picture Test, the Rosenzweig Picture-Frustration Study, the Rorschach test, and the Goodenough Draw-A-Man test. These authors present their conclusions in the form of tentative hypotheses with the overall impression that ". . . diabetes makes a real and tangible impact on personality in young children." Among their hypotheses are the following: (1) the older the child was at the onset of diabetes, the better his adjustment and control of emotional reactions to situational stresses; (2) the older the diabetic child, the more likely are signs of social competency as well as feelings of restriction and intellectual constriction; (3) diabetic girls appear to reflect greater inner conflict; (4) the higher the socioeconomic level of the diabetic child, the more likely are signs of intellectual maturity and better adjustment, and (5) parental convictions about imposing restrictions on children are associated with personality patterns of passivity, dependency, and feelings of being restricted. Such findings have therapeutic implications, for as Bennett and Johannsen state, "If, as this study suggests, the restriction of a child does serve to produce a constricted, unspontaneous, passive, dependent personality, then the medical restrictions must be accompanied by a deliberately designed educational and therapeutic procedure from the psychological side. Particularly, parents should be educated so that they will not impose additional, unnecessary restrictions. . . ."

Three hypotheses centered about recommended insulin dosages and insulin reactions. Findings suggested that the higher the recommended insulin dosage per unit of body weight, the more evident were signs of maturity and independence. Notwithstanding this,

> Combined with a mature, independent mode of behavior there seems to be a desire for dependency and a hidden need for love and affection. The net effect of behaving like a little adult with hidden wishes tc be a protected baby, may be, as it appears here, depressing. If further evidence supports the contention that as diabetes progresses, the child is forced to accept a greater and greater burden of adult, independent, responsible maturity while craving for protection, dependency, and care, then one of the major conflicts often associated with adult psychosomatic illness appears to be related to diabetes (*9*).

This same pattern was associated with glucose spillage, that is, the glucose content of the urine per unit of carbohydrate intake. As might be reasonably expected, those children with increased numbers of insulin reactions appeared less well adjusted and generally immature.

Allergic Disturbances

In 1906 the term "allergy" was used to denote the changed reaction capacity seen after recovery from disease or treatment with a substance foreign to the body. This concept of von Pirquet gave rise to the present view that ". . . histamine or some similarly acting substance, produced when antigen and antibody unite within or on the surface of the cell, reacts in turn on the neuromuscular apparatus of the shock organ (skin, lung, or other tissue) to produce the allergic reaction" (*148*). This view, in more detailed fashion, suggests that when foreign substances, antigens, are introduced into the body, antibodies are formed for protection. These antibodies also attach to the tissue cells, producing a sensitization. With additional contacts with the antigen there may result cell injury as the antigen unites with antibodies attached to the tissue cell. Histamine is released from the cell and this in turn acts upon the capillaries to produce dilation. The consequence of the process is swelling, and essentially, the symptom of allergy whether this be a welt, a rash, or wheezing.

The development of allergy is often attributed to heredity, but additional etiological agents have been differentiated. Among these are alterations in hormonal balance, sensitization through bacterial infections, and emotional stress. Psychological factors as possible precipitants of the allergic reaction have been frequently reported for asthma and dermatitis (*42*). Psychodynamics presumed to be operative in allergic cases have been reported most often in psychoanalysis. Saul (*149*) reasons that the relationship of the individual or child with the mother is the prime element in allergy. The mother-child constellation with its emotional complex is expressed and reflected in many ways. When this relationship with the mother becomes tenuous or when one feels under emotional stress, these needs are expressed in ways reflecting oral, dermal, and respiratory trends. The need impulse is either gratified, or undergoes repression, or conceivably appears in a regressive form. Just as the gastrointestinal disorders are related to the handling of dependency needs or hostility drives, so Saul feels the dermal and respiratory mechanisms may play a role in the skin and respiratory allergies. This basic notion of the importance of the mother-child relationship has found confirmation in the monograph of Alexander and French (*61*), and studies by Gerard (*62*), Miller and Baruch (*122*, *123*), and Harris, Rapoport, and Rynerson (*68*). These present either a picture of deep dependency and exaggerated fears of separation from the mother or evidence of maternal rejection. In the former case the asthmatic reaction becomes a repressed cry of helplessness; in the latter case, the child uses the allergic reaction as a resolution of conflicting needs.

Looking at the problem in terms of the consequences of allergy on behavior, Clarke (*26*) surveyed and received replies from 171 allergists. Of these 95 noticed personality changes due to allergy which corrected themselves when the allergic element was eliminated. Clarke states that the more common report emphasized irritability, fretfulness, and quarrelsomeness. In some cases behavior approached incorrigibility and resulted in suspension from school. When allergic treatment was instituted, definite shifts toward improved behavior resulted.

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Index of Names

Aaron, I. E., 193
Abbott, E., 388
Abbott, J. A., 415, 420
Abt, I., 395, 420
Abt, L. E., 81
Achilles, P. S., 331
Ackerman, N. W., 234, 331
Ackerson, L., 233, 259, 275, 281, 297, 312, 316, 411, 423, 544
Adler, A., 262, 275, 331
Adler, D. L., 487
Adler, H. M., 395, 420
Ainsworth, Mildred H., 136
Ainsworth, S., 410, 413, 414, 415, 420
Aldrich, C. A., 282, 286, 331
Alexander, F., 540, 544
Allen, F. H., 373, 387, 482
Allen, R. D., 193
Alster, B., 84
Alt, H., 342, 387
Amatruda, Catherine S., 83, 485
Anderson, Gladys L., 331
Anderson, J. E., 42, 287, 334
Anderson, W. O., 331
Andren, H. E., 331
Appel, K. E., 514, 541
Arbitman, H. D., 136, 138
Aretz, C. W., 465, 491
Arlitt, Ada H., 520, 527, 543
Arlow, J. A., 332
Armstrong, C. P., 363, 387
Arnvig, J., 456, 482
Arthur, Grace, 43, 68, 82
Artley, A. S., 93
Asher, Patria, 522, 540
Assum, A. L., 388
Austin, M. C., 39–40, 43
Axline, V. M., 97, 136
Ayres, L. P., 184, 193

Babcock, Marjorie E., 106, 136
Backus, O., 403, 406, 420
Bagby, E., 332
Baker, H. J., 157
Bakwin, H., 21, 23, 43, 305, 312, 331, 332
Bakwin, Ruth M., 21, 43, 312, 331, 332
Baldwin, A. L., 239, 332
Baldwin, J. M., 314, 332
Balistrieri, J., 360, 390
Ballantine, R. A., 195
Banham, Katherine M., 332
Bard, P., 493, 540
Barker, R. G., 426, 440, 447, 481, 482, 541
Barker, W., 508, 541
Barnes, Margaret R., 503, 504, 543
Barnett, H. E., 516, 517, 519, 524, 548
Barrett, Katherine, 482
Barron, M. L., 342, 387
Barry, H., Jr., 482
Bartelme, Phyllis, 395, 420
Bartemeier, L. H., 508, 541
Bartlett, E. R., 354, 387
Bartlett, W. M., 332
Baruch, Dorothy W., 540, 547
Baumann, Mary K., 482
Beane, J. C., 359, 388
Beasley, J., 403, 406, 420
Beck, S. J., 76, 77, 82, 103, 136
Beckey, R. E., 396, 420
Beckham, A. S., 131, 136
Beebe, Helen H., 458, 482, 485
Beers, Clifford W., 3, 8
Bekesy, G. von, 482
Belinson, L., 503, 541
Bell, Elizabeth, 465, 475, 490
Bell, J. E., 77, 81
Bellak, L., 77, 81, 82
Bellak, Sonya, 77, 82
Benda, C. E., 108, 110, 136
Bender, Lauretta, 239, 258, 265, 268, 314, 332, 496, 511, 541
Bennett, E. M., 538, 541
Benton, A. L., 82
Beres, D., 332
Berg, I. A., 6, 8, 331
Berger, Hans, 499

Berlin, I. N., 506, 541
Berman, Isabel R., 527, 528, 529, 548
Bernard, J., 482
Bernreuter, R. G., 82
Berry, M. F., 396, 403, 404, 406, 419
Best, H., 482, 483
Bettelheim, B., 264, 332
Beverly, B. T., 512, 549
Bice, H. V., 522, 541, 544
Bigman, G. T. A., 483
Bijou, S. W., 495, 541
Billig, A. L., 255, 332
Binet, Alfred, 8, 53, 82, 88, 137, 332, 395, 420
Birch, J. W., 229, 396, 422, 483
Birch, Jane R., 483
Bishop, Barbara M., 273, 315, 332
Blackburn, A. R., 445, 487
Blanchard, Phyllis, 157, 169, 193, 233, 275, 338
Blanton, M. G., 307, 332, 405, 411, 420
Blanton, S., 307, 332, 405, 411, 420
Blatz, W. E., 43
Blauvelt, J., 82
Bleuler, E., 314, 333
Bleyer, A., 297, 333
Block, W. E., 496, 541
Bloodgood, R. S., 388
Bloodstein, O., 412, 420
Blum, Lucille H., 542
Boenheim, C., 253, 306, 333
Bogen, D., 366, 367, 388
Boncour, G. P., 253, 333
Bond, E. D., 514, 541
Bond, G. L., 193
Bordley, J. E., 458, 483
Bossard, J. H. S., 42
Bostock, J., 333
Bovet, L., 371, 388
Bowers, M., 495, 550
Bowler, A. C., 388
Boyd, Edith, 15, 43
Bradway, Katherine P., 38, 43, 483
Brainerd, H. G., 108, 110, 137
Brandweim, P. F., 212, 229
Brazelton, T. B., 532, 541
Brecher, S., 547
Breckenridge, S., 388
Breese, Fay H., 239, 332
Bridge, E. M., 498, 499, 505, 508, 541
Bridges, K. M. B., 29, 30, 43
Bridgman, Olga, 483
Brieland, D. M., 449, 450, 483
Brill, R. G., 483
Bromberg, W., 541
Bronner, Augusta F., 65, 82, 176, 193, 298, 335, 386
Brousseau, K., 108, 110, 137
Browder, Sue, 508, 542
Brown, A. W., 512, 541
Brown, C., 8
Brown, B. D., 546
Brown, F. W., 407, 410, 420
Brown, P. A., 448, 449, 483
Brown, S. F., 419, 420
Browne, C. G., 83
Brownell, Katherine D., 541
Bruch, H., 333, 537, 542
Brueckner, L. J., 193
Brumbaugh, F. N., 211, 212, 218, 228, 229
Brunschwig, Lily, 483, 489
Bryngelson, B., 420
Bucklew, J., 93, 137
Buell, C., 483
Buhler, Charlotte, 333
Buhler, K., 36, 43
Bullis, G. E., 485
Bulser, M. E., 39, 44
Bunche, Ralph, 221
Burchard, E. M. L., 483
Burgemeister, Bessie B., 542
Burgi, Ernest J., 391
Burke, D. W., 356, 377, 388
Burns, C. L. C., 229
Buros, O. K., 47, 74, 80, 82
Burrows, A. T., 193
Burruss, Genette, 272, 337
Burt, Cyril, 136, 346, 347, 348, 351, 356, 359, 388
Buswell, G. T., 190, 194

Caille, Ruth K., 315, 333
Cameron, D. E., 333
Campbell, C. M., 127, 137
Cannon, W. B., 242, 333
Cantril, H., 40, 45
Caplin, D. A., 484
Capwell, D. F., 484
Carl, G. P., 137
Carmichael, L., 9, 14, 42
Carr, A., 404, 406, 420
Carr, L. J., 342, 366, 367, 387
Carrell, J., 484
Carrison, D., 495, 550
Carroll, H. A., 193
Carter, J. D., 506, 542
Carter, V. E., 484
Cassell, R. H., 96, 137, 138
Cattell, Psyche, 82, 484
Champney, H., 81, 82, 239, 333
Channing, Alice, 129, 131, 137

Chant, Nellie, 43
Chevigny, H., 484
Chidester, L., 116, 137
Churchill, Winston, 202
Ciotto, A., 474, 486
Cisler, Lillian E., 512, 541
Clark, E. A., 504, 505, 543
Clark, L. P., 116, 137, 542
Clark, R. M., 415, 420
Clark, W. W., 84
Clarke, T. W., 540, 542
Clifton, C. S., 171, 389
Clifton, L. L., 193
Cobb, S., 497, 546
Coleman, W. C., 157
Collins, A. Louise, 503, 504, 505, 542, 546
Colm, Hanna, 333
Colton, Kathryn C., 544
Conklin, E. S., 268, 275, 276, 333
Conn, J. H., 306, 333, 502, 504, 542
Cooke, Ebenezer, 62
Copellman, F. S., 542
Corbett, G. R., 87, 140
Coriat, I. H., 411, 420
Cornell, Ethel L., 68, 83
Cotton, C. B., 115, 137, 523, 542
Cotzin, M., 117, 137
Courthial, A., 352, 388
Cowie, W. S., 541
Cox, Catherine M., 207, 229
Cox, I., 458, 484
Coxe, Warren W., 68, 83
Crane, Marian M., 484
Criswell, J. H., 40, 43
Cronbach, L. J., 81
Crosby, S. B., 388
Cross, O. H., 449, 484
Crothers, B., 525, 542, 547
Crowell, David H., 425 *n.*, 492 *n.*, 522, 523, 533, 536, 542
Crowell, Doris C., 522, 523, 533, 536, 542
Cruikshank, W. M., 8, 488, 496, 522, 523, 541, 542, 543
Curtis, J. F., 416, 419, 420
Curry, T., 392, 421
Cutsforth, T. D., 440, 450, 484
Cutts, N. E., 225, 229
Cutts, W. C., 195
Cypreanson, L., 415, 421

Daltroff, W., 337
Danielson, F. H., 92, 137
Darrow, C., 93, 137
Darwin, Charles, 200
Davenport, C. B., 92, 137, 138
Davidoff, E., 385, 388
Davidson, Audrey, 333
Davis, Gertrude D., 137
Davis, H., 484, 491
Davis, Katherine B., 304, 305, 306, 312, 333
Dawson, S., 502, 504, 542
Day, H. E., 484
Dearborn, L. W., 333
De Fries, Zira, 508, 542
Dembo, Tamara, 487
Denhoff, E., 542, 543
Dennis, W., 20, 36, 43
Despert, J. Louise, 287, 288, 289, 333, 334
Deutsch, F., 543
Dexter, Elizabeth H., 327, 334
Diamond, B. L., 447, 484
Diehl, C. F., 404, 422
Diethelm, O., 320, 334, 508, 543
Diller, Juliet C., 296, 334
DiMichael, S. G., 134, 137
Dixon, R. W., 195
Dolger, H., 537, 543
Doll, E. A., 8, 43, 80, 83, 86, 90, 91, 92, 99, 106, 114, 137, 138, 139, 493, 520, 543
Dollard, J., 257, 334
Dolphin, Jane E., 496, 523, 543
Doob, L. W., 257, 334
Doppelt, J., 84
Drahms, A., 357, 388
Draper, G., 528, 543
Dugdale, R. L., 91, 138
Dunbar, H. Flanders, 533, 538, 543
Dunsdon, M. I., 525, 543
Durea, M. A., 352, 388

Eames, T. H., 193
Ebaugh, F. G., 326, 334
Eckenrode, C. J., 149, 157, 388
Edison, Thomas A., 202
Edmondson, Edna H., 388
Edney, C., 419
Einstein, Albert, 202
Eisele, H. E., 543
Eisenson, J., 396, 403, 404, 406, 419, 421, 489, 512, 548
Ellingson, R. J., 334
Ellis, Havelock, 303, 334
Emerson, C. P., 138, 292, 295, 334
Engle, T. L., 128, 138
English, O. S., 272, 334
Esquirol, J. E. D., 87, 138
Estabrook, A. H., 91, 138
Evans, J. W., 298, 334
Ewing, A. W. G., 457, 461, 473, 484
Ewing, Irene R., 457, 461, 473, 484
Exner, M., 334

Faegre, Marion L., 42, 287, 334
Fairbanks, G., 400, 421
Fairbanks, Ruth E., 127, 138
Falk, R., 504, 543
Farber, I. E., 334, 339
Fay, Judith, 333
Featherstone, W. B., 143, 144, 158
Feindel, E., 253, 337
Feldman, V., 272, 338
Fenichel, O., 244, 305, 334
Fenton, N., 346, 353, 354, 388
Fernald, Grace M., 193
Fernald, Mabel R., 520, 527, 543
Fernald, W. E., 98, 100, 104, 138
Fetterman, J., 503, 504, 543
Fiedler, Miriam F., 165, 193, 484
Fine, H. G., 226, 229
Finger, F. W., 312, 475, 484, 490
Fisch, M. L., 524, 545
Fisher, A. E., 536, 537, 543
Fitzgerald, J. A., 177, 193
Fleming, B. M., 43
Fletcher, J. M., 411, 421
Fonner, D., 504, 548
Foote, J. A., 253, 340, 484
Ford, F. R., 544
Forlano, G., 84
Foster, Sybil, 261, 262, 334
Fox, T. J., 502, 504, 544
Frank, L. K., 75, 83
Frank, P., 229
Frary, Louise G., 296, 334
Freeman, F. N., 185, 194, 195
Freidel, F., 229
French, E. L., 138
French, T. M., 540, 544
Freud, Anna, 258, 334
Freud, Sigmund, 244, 257, 291, 305, 335
Friedlander, Kate, 240, 334
Frith, Gladys D., 122, 139
Froeschels, E., 415, 421, 458, 485
Fulcher, J. S., 485
Fusfeld, I. S., 476, 484, 485

Gage, N. L., 26, 45
Gahagan, L., 503, 504, 549
Gardner, G. E., 275, 335
Gardner, W. H., 485
Garret, J. F., 487
Gates, A. I., 166, 172, 176, 194, 489
Gerard, M. W., 540, 544
Gersten, C., 389
Gesell, Arnold, 18, 22, 43, 71, 83, 392, 421, 430, 440, 457, 485
Gibbs, Erna, 499, 544
Gibbs, F., 499, 544
Gifford, M., 415, 421
Gilbert, G. M., 235, 335
Gilbert, L. C., 194
Gillespie, R. D., 335
Gillet, A. M., 410, 422
Gillingham, Anna, 185, 195
Glasner, P. J., 414, 421
Glickman, Sylvia, 352, 389
Glorig, A., 489
Glowatsky, E., 466, 485
Glueck, Eleanor T., and S. S., 157, 346, 347, 348, 350, 351, 352, 353, 354, 355, 356, 358, 359, 360, 361, 362, 363, 364, 365, 366, 368, 383, 386, 387, 388, 389
Goddard, H. H., 24, 43, 53, 63, 91, 92, 138, 212, 229
Goertzel, Mildred G., 197
Goertzel, Victor, 197
Goldberg, M., 230
Goldstein, K., 244, 335
Gonick, M. L., 482
Good, C. V., 8
Goodenough, Florence L., 33, 43, 62, 83, 259, 261, 315, 335, 490
Goodhill, V., 373, 485
Goodman, S. E., 298, 337
Goodwin, F. B., 395, 421
Gordon, R. G., 335, 527, 544
Gormley, Geneva J., 484
Gottschalk, L. A., 508, 544
Gowan, J. C., 218, 229
Graham, E. E., 485
Gray, C. T., 166, 170, 194
Gray, W. H., 194
Gray, W. S., 194, 195
Greear, J. N., Jr., 485
Green, C. E., 190, 194
Green, G. M, 268, 335
Greenbaum, J. V., 511, 544
Greenberg, Mirrella, 333
Griffiths, R., 544
Griffiths, W., 236, 335
Grossbard, H., 342, 387
Grugett, A. E., 314, 332
Guertin, W. H., 96, 138, 335
Gutteridge, M. V., 20, 43

Habbe, S., 481, 485
Hafner, A. S., 93, 137
Hagen, Elizabeth, 82
Hagman, R. R., 31, 44, 246, 335
Hahn, E. F., 410, 419
Haines, T. H., 335
Hall, G. Stanley, 73
Hall, P., 476, 485
Halls, Emily C., 400, 422

Halstead, W., 419, 421
Halverson, H. M., 18, 43, 44, 440, 491
Hamilton, G. V., 311, 335
Hamlett, Iona C., 128, 138
Hanks, Jane R., 485
Hanks, L. M., Jr., 485
Hanna, G. C., 131, 138
Hanson, H. B., 527, 528, 529, 548
Hardy, W. G., 458, 483, 485
Harms, E., 331
Harper, F. V., 389
Harrington, R., 416, 421
Harris, D. B., 528, 529, 530, 540, 544
Harris, I. D., 544
Harrison, R., 77, 83
Hartwell, S. W., 138
Harwood, O. M., 485
Haslerud, G. M., 449, 450, 486
Hathaway, Winifred, 485, 486
Hattwick, L. A., 37, 44
Havighurst, R. J., 214, 229
Hayes, M., 44
Hayes, S. P., 443, 446, 486
Healy, William, 3, 8, 65, 82, 298, 335, 346, 347, 351, 352, 359, 361, 373, 385, 386, 389
Heath, S. J., Jr., 96, 138
Heck, A. O., 8, 144, 157–158
Heerseema, P., 512, 544
Heider, Grace M., 467, 486
Heilman, Ann, 544
Heiser, K. F., 136
Henderson, S. V., 200, 229
Henrikson, E., 414, 421
Henry, N. B., 489
Hertz, Marguerite R., 76, 83
Hester, K. B., 227, 229
Hetherington, Virginia A., 115, 139
Hetzer, H., 316, 335
Hewlett, I., 537, 542
Hicks, J. A., 44
Highlander, M., 297
Hildreth, Gertrude H., 83, 194, 209, 211, 228, 229
Hilgard, E. R., 27, 44
Hilkevitch, R. R., 502, 504, 505, 544
Hill, A. S., 117, 139
Himler, L. E., 509, 544
Hirsh, I. J., 486
Hobson, J. R., 229
Hoch, P. H., 320, 331, 334
Hodder, Jessie, D., 122, 139
Hodson, A. Edith, 532, 549
Hoke, K. J., 185, 196
Holden, R. H., 525, 532, 541, 543
Hollingshead, A. B., 155, 158, 207, 220, 230
Hollingworth, Leta S., 194, 197, 209, 211, 219, 225, 230
Holmes, A., 2, 8, 31
Holoran, Irene M., 544
Holt, L. E., 296, 335
Honig, P., 415, 421
Hood, H. B., 486
Hopkins, T. W., 544
Horn, E., 181, 195
Horney, Karen, 244, 335
Horowitz, E. L., 41, 44
Horrocks, J. E., 39, 44, 46
Howard, F. E., 233, 336
Howell, W. J., 149, 158
Howland, J., 296, 335
Hudgins, C. V., 474, 486
Hughson, W. A., 474, 486
Humphrey, J. H., 475, 486
Hunt, Eleanor, P., 425, 487, 499, 514, 546
Hunt, J. McV., 335, 337
Hurlock, Elizabeth B., 36, 42, 316, 336
Hutchins, R. M., 208

Ilg, F. L., 22, 43, 392, 421, 485
Ingalls, T. H., 486
Irwin, F. W., 138
Irwin, O. C., 44, 291, 336, 392, 421

Jaeger, W., 412, 420
Jellinek, Augusta, 486
Jenkins, R. L., 239, 337, 352, 389, 512, 541, 544
Jennings, H. H., 39, 44
Jensen, R. A., 508, 544
Jersild, A. T. and C. L., 29, 31, 32, 44, 246, 336
Jervis, F. M., 449, 450, 486
Jervis, G. A., 139
Jewel, B. T., 521, 545
Johannsen, Dorothea E., 538, 541
Johnson, Eleanor, 149, 158
Johnson, Elizabeth H., 473, 477, 486
Johnson, Wendell, 403, 406, 412, 414, 415, 419, 421
Jolles, I., 139
Jones, H. E., 24, 30, 44, 246, 336
Jones, J. W., 486
Jones, May C., 246, 250
Jones, M. R., 334
Jorgensen, Margaret, 545
Joslin, Ethel S., 194
Josselyn, Irene M., 545

Kalhorn, Joan, 239, 332
Kant, Immanuel, 200

Kanner, L., 233, 243, 251, 253, 255, 259, 281, 284, 292, 293, 294, 296, 297, 298, 301, 306, 331, 333
Kaplan, S., 531, 546
Karlin, I. W., 395, 411, 414, 421
Kastein, S., 415, 421
Kay, Marjorie E., 194
Keastèr, Jacqueline, 419, 458, 486
Kelley, D. M., 77, 83
Kelley, T. L., 194
Kennedy, A. M., 410, 422
Kennedy, L., 395, 404, 420, 421
Kent, Grace H., 81, 83, 84
Kephart, N. C., 140
Kerby, C. Edith, 438, 487
Keyes, C. H., 150, 158
Keys, N., 230
Kimmins, C. W., 291, 336
Kinney, C. E., 457, 487
Kinsey, A. C., 304, 305, 306, 312, 336
Kipling, Rudyard, 203
Kirk, S. A., 117, 139, 487, 490
Kirschbaum, Ruth M., 548
Klebanoff, S. G., 493, 496, 545
Klein, Melanie, 298, 336
Kleitman, N., 287, 288, 336
Klopfer, Bruno, 76, 77, 83
Koch, Helen L., 40, 44
Koestler, Arthur, 203
Komisar, D., 445, 487
Kopp, G. A., 410, 422
Koren, J., 358, 389
Kronvall, E. L., 404, 422
Kuder, G. F., 80, 83
Kuenzel, Myra W., 108, 139
Kugelmass, A. A., 221, 230
Kugelmass, I. N., 503, 545
Kuhlmann, F., 83
Kuttner, Ann G., 545
Kvaraceus, W. C., 346, 347, 348, 353, 354, 357, 359, 363, 365, 387, 389

Ladieu, Gloria, 487
Lamm, S. S., 524, 545
Lander, B., 369, 389
Landisberg, Selma, 545
Landreth, C., 44
Lane, Helen S., 487
Langdon-Down, J., 108, 139
Langford, W. S., 545
Lapage, C. P., 395, 422
Larsen, E. J., 91, 114, 139
Latimer, Ruth H., 254, 336
Laurer, F. A., 475, 487
Lawrence, P. S., 424, 486
Lee, M. V., 527, 545
Lehman, E., 336
Lehman, H. C., 230
Lehrman, P. R., 268, 336
Lehtinen, Laura E., 140, 523, 549
Leiberman, Rose, 95, 141
Lenihan, Ellenora A., 548
Lennox, Margaret A., 545
Lennox, W. G., 497, 498, 503, 505, 506, 509, 545, 546
Lesser, A. J., 425, 487, 499, 514, 546
Leuba, C., 44
Lev, J., 489
Levine, Edna S., 466, 487
Levine, J., 445, 487
Levine, M. I., 305, 336
Levinson, E. D., 546
Levitt, J., 546
Levy, D. M., 75, 254, 262, 274, 315, 336
Lewis, D., 199, 230
Lewis, N. D. C., 339
Lilienfeld, A. M., 498, 546
Lisansky, Edith Silverglied, 505, 546
Livingston, W. A., 389
Lloyd, Ruth, 326, 334
Loftus, J. J., 84
Lord, Elizabeth E., 114, 139, 487, 546
Lord, J. P., 299, 337
Lorge, I., 487
Lorr, M., 6, 8, 239, 337
Loughlin, W. C., 537, 546
Louttit, C. M., 8, 38, 45, 61, 83, 91, 122, 139, 400, 422, 445, 466, 487
Louttit, R. T., 139
Lowe, Gladys M., 65, 82
Lowenfeld, B., 441, 486, 487
Lowman, C. L., 528, 546
Luke, J. A., 337
Lundin, W. A., 366, 367, 389
Lurie, L. A., 38, 45, 511, 544
Lyons, R. A., 531, 546
Lyons, W. F., 397, 403, 405, 424

McAndrew, Helton, 449, 488
McBride, K. E., 418, 424
McBride, M., 509, 546
McCarthy, D., 392, 422
MacClenathon, R. H., 337
McConnell, F. E., 474, 488
MacDonnell, Marian, 445, 487
McGavin, A. P., 546
McGraw, Myrtle B., 23, 45
McGuiness, A. C., 298, 337
McIntire, J. T., 114, 139, 520, 522, 547
McKay, H. D., 359, 363, 368, 376, 390
McKaye, D. L., 268, 337
McLendon, P. A., 22, 45

MacNalty, A., 510, 546
MacPherson, Jane, 487
Madden, R., 464, 465, 475, 488
Mahler, M. S., 253, 337
Malone, A. J., 255, 337
Malzberg, B. A., 110, 337
Marcus, R. E., 458, 488
Markey, F. V., 31, 246, 336
Markham, C. H., 546
Marquis, Dorothy P., 291, 337, 339
Marshall, Frances E., 482
Martin, C. E., 336
Maslow, A. H., 208
Massler, M., 255, 337
Mastens, Elsie H., 237, 272, 337
Mateer, Florence, 110, 139
Mathews, Mabel A., 131, 139
Matthews, Jack, 391, 396, 422
Maudry, M., 36, 45
Maurer, K. M., 522, 546
Maxfield, Kathryn E., 450, 488
May, C. H., 488
May, R., 331
Mead, C. D., 19–20, 45, 395, 422
Mead, Margaret, 208
Meader, M. H., 395, 422
Meagher, J. F., 337
Meige, H., 253, 337
Melby, E. O., 193
Melcher, Ruth T., 114, 138, 139, 520, 543
Menninger, K., 116, 137
Menninger, W. C., 536, 547
Menuhin, Yehudi, 203
Merrill, Maud A., 53, 54, 84, 346, 354, 357, 358, 359, 365, 387, 389
Metraux, M. H., 392, 422
Meumann, E., 160, 194
Meyer, Edith, 497, 519, 525, 529, 542, 547
Meyers, E. T., 441, 445, 488
Meyers, R., 547
Meyerson, L. A., 458, 464, 482, 488
Michaels, J. J., 298, 337
Mikell, R. F., 440, 488
Milisen, R., 400, 401, 402, 406, 422, 423, 424
Miller, Elsa, 114, 139, 540, 547
Miller, H., 547
Miller, N. E., 257, 291, 334, 337
Miller, V. L., 339
Missildine, W. H., 169, 194
Mitchell, Mary A., 194
Mohr, G. J., 337
Mohr, Jennie, 545
Moncur, J. P., 412, 422
Monroe, Marian, 189, 194
Monroe, W. S., 195
Moreno, J. L., 39, 45
Morgan, C. D., 77, 83
Morgan, J. J. B., 254, 270, 337
Morley, D. E., 401, 422
Morris, D. P., 272, 337
Morris, W. W., 449, 488
Morrison, W. J., 488
Morse, W. C., 195
Mort, P. R., 143, 144, 158
Mosenthal, H. C., 538, 546
Mosley, N., 225, 229
Mountcastle, V. B., 493, 540
Mowrer, O. H., 244, 257, 302, 334, 337, 338, 392, 422
Mowrer, W. M. A., 338
Muckenfuss, R. S., 510, 547
Muckler, F. A., 268, 338
Munn, N. L., 28, 45
Murchison, C., 336, 340
Murphy, D. P., 94, 139
Murphy, F. J., 343, 389
Murphy, G., 37, 45
Murphy, L. B., 37, 45
Murray, H. A., 77, 83
Myklebust, H. R., 396, 417, 418, 422, 461, 483, 488

Nadell, R., 543
Nagelberg, L., 272, 338
Neal, Josephine B., 510, 511, 541, 547
Nebelung, R. G., 535, 547
Neham, Sara, 117, 140
Nekula, M., 36, 45
Nelson, J. F., 315, 338
Nelson, S., 422
Nelson, W. E., 547, 548
Nerney, M. C., 230
Neuburger, M. H., 45
Neumeyer, M. H., 389
Newell, H. W., 274, 338
Newcomb, T. M., 37, 45
Noelzel, Elinor S., 385, 388
Norris, D., 226, 230
Norsworthy, Naomi, 63, 83
Notkin, J., 548

O'Connor, N., 128, 141
O'Connor, C. D., 488
Oden, M. H., 228
O'Kelly, L. I., 253, 268, 338
Oleron, P., 489
Olson, W. C., 74, 84, 252, 253, 338
Orman, J. N., 483
Orton, S., 185, 195
Oster, J., 108, 140
Outcalt, L. C., 45

Pacella, B. L., 338, 339
Palmer, M. F., 410, 422
Palumbo, A. Z., 491
Pappenheim, Else, 243, 338
Parten, M. B., 37, 45
Pasamanick, B., 498, 546
Pashkind, H. A., 504, 548
Passou, A. H., 230
Paster, S., 382
Paterson, D. G., 67, 84, 466, 489
Patry, F. L., 233, 336
Patterson, H. A., 504, 548
Pauley, G. R., 143, 158
Pauls, Miriam D., 458, 485
Paynter, R. H., 233, 275, 338
Peacher, W. G., 404, 418, 419, 423
Pearson, G. H. J., 272, 334, 338, 482
Peck, M. W., 338
Peden, G. W., 546
Pennington, L. A., 6, 8, 331
Penrose, L. S., 87, 91, 93, 108, 109, 110, 111, 114, 136, 140, 504, 543
Percival, W. P., 158
Perlstein, M. A., 515, 516, 517, 519, 524, 548
Peterman, M. G., 499, 548
Peterson, E., 489
Petrovski, S. G., 296, 338
Pfister, H., 298, 338
Phelps, W. M., 138, 520, 543, 548
Phillips, E. L., 528, 529, 548
Phillips, T. A., 144, 149, 158
Pierce, H. D., 275, 335
Pinanski, Joan, 548
Pintner, R., 67, 74, 84, 88, 140, 466, 467, 481, 484, 489, 512, 528, 548
Platonov, S. F., 379, 389
Podolsky, E., 258, 261, 338
Pomeroy, W. B., 336
Porterfield, A. L., 344, 346, 389
Porteus, S. D., 60, 81, 84, 87, 140, 195
Potter, G., 97, 234, 509, 546
Poull, L. E., 503, 545
Poulos, T. H., 477, 489
Powell, Harold F., 142 *n.*, 149, 158, 159 *n.*
Powell, N. B., 338
Powers, E., 346, 352, 385, 387
Pratt, K. C., 31, 32, 45
Pregler, H., 225, 230
Pressey, S. L., 230
Prince, J. W., 476, 489
Pritchard, M., 199, 230
Pronovost, W. E., 393, 423
Pruette, Lorine, 268, 338
Prugh, D. G., 532, 548
Pugh, G. S., 477, 489
Putnan, Maria C., 338

Quibor, G., 489

Raines, Shirley, 169, 195
Ramsey, G. V., 311, 338
Rangell, L., 253, 337
Rank, Beata, 338
Raphael, Theophile, 509, 544
Rapoport, Lyden, 540, 544
Rasmus, B. J., 404, 424
Raus, G. M., 541, 542
Rayner, R., 249, 340
Reamer, J. C., 475, 489
Redl, F., 264, 339
Reece, Michael M., 232, 280
Reed, H. R., 502, 504, 548
Reeves, Margaret, 389
Reichenberg, W., 127, 140
Reid, G., 403, 404, 423
Reid, L. D., 408, 410, 423
Reinhardt, J. M., 389
Remmers, H. H., 26, 45
Renshaw, S., 168, 195, 291, 339
Reynolds, Martha M., 315, 316, 339
Ribble, Margaret A., 239, 339
Richards, Ester L., 242, 320, 324, 339
Ricketts, A. F., 33, 45
Riesman, David, 208
Ring, Rose, 328, 339
Rinsland, H. D., 177, 195
Roberts, J. A., 544
Robinson, H. M., 169, 195
Rocklin, G., 338
Roe, Anne, 212, 213, 219, 221, 230
Roe, V., 400, 401, 423
Roff, M. A., 239, 339
Rogers, C. R., 74, 84, 322, 339
Rohleder, H., 339
Roosevelt, Eleanor, 202, 230
Roosevelt, Franklin D., 202
Roosevelt, Theodore, 203
Rorschach, Hermann, 75, 84
Rosenberg, P. E., 489
Rosenblith, W. A., 482
Rosenfeld, G. B., 114, 139, 547
Rosenthal, F. M., 45
Rosenzweig, S., 257, 264, 339
Ross, A., 484
Ross, Bertha M., 261, 262, 339
Ross, Grace, 447, 489
Rotter, J. B., 1, 3, 8, 77, 84, 411, 423
Rubenstein, E. A., 6, 8
Rubin, M. I., 548
Ruch, G. M., 194

Rudnick, J., 503, 545
Rudolf, G. de M., 140
Rusalem, H., 489
Russ, Helen, 272, 337
Russell, D. H., 169, 195
Rust, M. M., 315, 339
Rynerson, Mary Ann, 540, 544

Sanders, M. K., 37, 44
Sandin, A. A., 144, 158
Sands, Harriet H., 548
Sarason, E. R., 115, 140
Sarason, S. B., 96, 103, 114, 115, 136, 140
Saul, L. J., 540, 548
Saylor, H., 400, 423
Schachtel, Ernst G., 350
Scheidmann, N. V., 194
Scheifele, M., 204, 207, 228
Schieffelin, B., 65, 84
Schlanger, B. B., 397, 403, 405, 423
Schmidt, B. G., 96, 117, 140
Schmuller, A. M., 27, 46
Schneck, M. R., 195
Schneider, B., 397, 405, 423
Schneider, J., 487
Schoenfeld, M. D., 140
Scholl, Geraldine, 489
Schonell, Eleanor, 522, 540
Schroeder, P. L., 411, 423, 548
Schuel, H., 414, 423
Schultz, D. A., 415, 423
Schultz, E., 546
Schwartz, E. E., 390
Schwartz, L. A., 84
Schweitzer, Albert, 203
Schwesinger, J. C., 65, 84
Scott, D. A., 406, 423
Scott, L. M., 548
Scott, T. F. McNair, 549
Sears, R. R., 257, 334
Seashore, C. E., 84
Seashore, H., 84
Seidenfeld, M. A., 490, 528, 546
Seltzer, C. C., 349, 390
Sender, S., 316, 336
Sewall, Mabel, 261, 262, 339
Shaffer, T. E., 432, 490
Shakow, D., 83, 84
Shapiro, Esther, 485
Shaw, C. R., 359, 363, 368, 374, 376, 390
Sheehan, J. G., 412, 415, 423
Sheer, D. E., 496, 549
Sheldon, W. D., 195
Sheldon, W. H., 348, 390, 490
Sherif, M., 40
Sherman, M., 29, 30, 45, 512, 549
Sherrington, C. S., 493, 549
Shideler, E. H., 390
Shimberg, Myra E., 65, 82, 127, 140
Shirley, Mary M., 45, 343, 389, 392, 424, 490
Shirlock, Margaret E., 139
Shoben, E. J., 239, 339
Shrubsall, F. C., 549
Silverman, S. R., 490
Simmel, Marianne, 497, 519, 547
Simon, Edna, 488
Simon, S. D., 230
Simon, Theodore, 8, 53, 82, 88, 137, 227, 332, 395, 420
Singer, J. L., 493, 545
Simsarian, F. P., 22, 45
Sirkin, J., 397, 403, 405, 424
Slawson, J., 390
Sloan, W., 103, 140
Smalley, Ruth E., 261, 339
Smith, D. I., 490
Smith, G. B., 114, 140
Smith, T. L., 339
Snow, K., 402, 424
Snyder, L., 140
Somerfield-Ziskind, Esther, 503, 549
Sommers, Vita S., 447, 490
Sontag, L. W., 482, 490
Soroker, Eleanor, 272, 337
Spelt, D. K., 490
Spence, K. W., 339
Spender, Stephen, 203
Sperling, Melitta, 292, 295, 339
Spitz, R. A., 239, 340
Spock, B., 42, 294
Spotnitz, H., 272, 338
Springer, N. N., 490
Sprunt, Julie W., 475, 490
Stackman, H., 61, 83
Stallings, H. L., 374, 387
Stanton, Mildred, 489, 512, 548
Staub, Elizabeth M., 548
Steigman, A. J., 549
Sterling, E. Blanche, 465, 475, 490
Stevens, S. S., 482
Stinchfield, S. M., 417, 419
Stogdill, R. M., 84, 340
Strang, Ruth J., 213, 230
Strauch, A., 289, 340
Strauss, A. A., 140, 495, 523, 549, 550
Strazzula, M., 395, 421
Streng, Alice, 488, 490
Strong, E. K., Jr., 80, 84
Strothers, C. R., 519, 524, 549
Stutsman, Rachel, 72, 84
Sullenger, T. E., 390

Sullivan, Ellen B., 504, 549
Sullivan, H. S., 340
Sumption, M. R., 144, 149, 158
Sutherland, E. H., 371, 390
Sweeney, Mary, 243, 338
Sweet, C., 340
Sylvester, E., 332

Tait, A. T., 169, 195
Talbot, Beatrice, 532, 541
Taran, L. M., 532, 546, 549
Taylor, G. J., 388
Taylor, H., 170, 195
Taylor, R. L., 230
Teagarden, F. M., 10, 46
Templin, Mildred C., 404, 424, 467, 477, 490, 491
Tenny, J. W., 491
Terman, L. M., 19, 46, 53, 54, 84, 140, 194, 197, 199, 209, 212, 213, 216, 219, 228, 229, 230
Thacher, G. A., 140
Thom, D. A., 276, 282, 331
Thomas Aquinas, St., 199
Thompson, G. G., 40, 41, 42, 43, 46
Thompson, Helen, 13, 15, 21, 46, 491
Thompson, Jean M., 340, 491
Thorndike, R. L., 82
Thorne, F. C., 116, 141
Thorpe, L. P., 27, 46, 74, 84
Thuma, B., 495, 550
Thurstone, L. L., 46
Tiebout, H. M., 372, 390
Tiegs, E. W., 84
Tilson, M. A., 281, 340
Timme, A. R., 549
Tinker, M. A., 166, 195
Tissot, Simon-André, 340
Tizard, J., 128, 141
Tolan, T., 491
Touraine, G., 333
Town, Clara H., 141, 395, 424
Travis, L. E., 393, 406, 407, 410, 411, 424
Tredgold, A. E., 136
Tredgold, R. F., 136
Tulchin, S. H., 315, 336
Tureen, J. A., 412, 420

Unger, Edna W., 131, 477
Upshall, C. C., 477, 491

Vallon, J., 397, 405, 423
Van der Kolk, J. A., 491
Van der Scheer, W. M., 108, 110, 141
Van Riper, C., 392, 394, 395, 396, 397, 403, 406, 414, 416, 420
Viets, Louise E., 255, 340
Voelker, P. H., 226, 230
Vogel, F., 332

Wade, F. A., 465, 491
Wagner, I. F., 46
Waldeman, J. L., 465, 475, 491
Wallin, J. E. W., 136, 395, 400, 424, 502, 514, 528, 549
Walsh, J. L., 253, 340
Walsh, T. E., 491
Warwick, H. L., 475, 491
Washburne, C. W., 188, 189, 195
Watson, Alice E., 182, 196
Watson, J. B., 46, 249, 340
Watson, L. A., 491
Watson, Ruth I., 1, 3, 6, 8, 29, 38, 45, 82
Wattenberg, W. W., 360, 390
Weaver, Carl H., 491
Wechsler, D., 85, 255, 340
Wedberg, A., 414, 424
Wedeking, Lorena P., 390
Weider, A. L., 82
Weiner, Norbert, 203
Weisenburg, T., 418, 424
Weissenberg, L., 138
Wells, F. L., 338
Wepman, J. M., 36, 418, 419, 424
Werner, H., 495, 496, 523, 541, 549, 550
Wesman, A., 84
West, R., 392, 404, 406, 420
Westlund, N., 491
Whilden, Olive A., 550
Wickman, E. K., 74, 340
Wiener, Louise L., 508, 543
Wilensky, H., 493, 545
Williams, D. A., 410, 422
Williams, Gertrude H., 196
Wilson, F. T., 211, 226, 228
Wilson, G. M., 185, 195, 196
Wilson, J., 440, 489, 491
Wilson, R. C., 231
Wineman, D., 338
Winfield, D. L., 504, 505, 550
Wischner, G. J., 413, 424
Witmer, H. L., 2, 3, 8, 343, 346, 352, 385, 387, 389
Witting, E. G., 474, 486
Witty, Paul, 169, 196, 219, 229, 231
Wolfe, W. G., 550
Wolfle, D., 207, 219, 220, 229
Wolman, Diana, 491
Wollner, M. H. B., 196
Wood, K. S., 415, 424
Wooley, Helen T., 296, 340
Wright, B. A., 482

Wurstein, H., 521, 544

Yannet, H., 95, 141
Yeager, C. L., 506, 541
Young, E. H., 417, 419
Young, H. H., 60, 85
Young, R. H., 529, 550

Zahl, P. A., 487
Zeckel, A., 491
Ziskind, E., 503, 549
Zolkos, H. H., 169, 196
Zubin, J., 331, 334
Zyve, D. L., 85

Index of Subjects

Abilities, definitions and growth characteristics of, 23–28
  special, 26–27
Ability, measurement of, 47–48
Abnormalities, structural and functional, 10
Absence, school, and school retardation, 154
Accelerated children, 143
    See also Gifted child
Acceleration, vs. school retardation, 143 ff.
Accommodation, in eye function, 429–430
Achievement, definition and growth characteristics of, 27
  tests, 27, 52
Adaptation Board, 65
Adjustment, personality, sixteen criteria for, 41–42
Adolescence, defined, 12
Aggression, and problem behavior, 33, 236, 256–267; correction of, 263–267
    See also Problem behavior
Agnosia, 419, 493
Akinetic epilepsy, 501
Alexia, 167
Allergic disturbances, 529–540
Amblyopia, 436
Amentia, 93, 94
  postnatally acquired, 95
American Association of School Administrators, 213
American Medical Association, 432
American Optical Sight-screener, 433
American Philosophical Society, 213
American Psychological Association, 8
  definition of clinical psychology, 2
  in history of clinical psychology, 2
American Psychiatric Association, 319
American Speech and Hearing Association, 394
Anatomical abnormalities, and mental deficiency, 106
Anger, in emotional development, 32
  home influences and, 260
  in problem behavior, 259–261
  socially acceptable, 35
Anophthalmos, congenital, 440
Anorexia, 281–283
    See also Feeding problems
Anxiety, defined, 241
  vs. fear, 241
  origin of, 244
  and problem behavior, 232–245
  in sleeping problems, 294–295
    See also Problem behavior
Aphasia, 397, 417–419, 493
  defined, 417
Appetite, excessive, 283–284
  perverted, 284–285
  poor, 282–283
Apraxia, 419, 493
Aptitudes, definition and growth characteristics of, 26–27
Aptitude tests, 27, 52–53, 79–80
Aqueous humor, 429
Arithmetic, disability in, 187–193
  causes of, 189
  diagnosis of, 191–192
  and inefficient methods of work, 190
  and intelligence tests, 189
  and poor computational habits, 189
  remedial work for, 192–193
  verbal problems and, 189
Army General Classification Test (AGCT), 207, 220
Arrests, number of, in juvenile delinquency, 344–345
    See also Juvenile delinquency
Art, special talent in, 26
Arthur Performance Scale, 25, 68
Articulatory defects, causes of, 402–404
  examination for, 401–402
  management of, 405–406
  nature and incidence of, 400–401
  organic factors in, 404
  in speech disorders, 397–406
Ascendant behavior, 36
Aspects of Personality (Pintner), 74–75
Associations, in linguistic activities, 160–162
Asthenopia, 435–436

Astigmatism, 435
Ataxia, described, 516
Athetosis, described, 516
Attendance, school, and reading skill, 171
Attitude, psychological meaning of, 40
Audiograms, 456
Audiometry, 458
Audition, physiology of, 451–458
Auditory acuity and measurement, 454–458
Auditory defects, and reading skill, 164–165
  and speech difficulty, 179
Auditory impairment, 458–460
  educational achievement and, 475–481
  intelligence and, 461–467
  language development and, 467–473
  and psychological characteristics, 460–461
Auditory meatus, 453
Auricle, 453
Avoidance problems, in problem behavior, 267–279
  shyness and withdrawal in, 271–274
Awareness, 29

Babies, newborn, similarities and differences in, 9–10
Baby talk, 400
Baltimore Project, 509
Bashfulness, 274
Bausch and Lomb Ortho-Rater, 433
Bedwetting, 295
  corrections for, 301–302
  parents' attitude toward, 297
    See also Enuresis
Behavior, adjustment, as main object of clinical psychology, 6
  affectionate, 34
  appraisal of, 4–5
  ascendant, 36
  cöoperative, 37
  emotional, in infancy, 29–30
  development, as integrated process, 13
  disorders, primary, 234
  epilepsy and, 512–514
  prediction of, 4
  problem, *see* Problem behavior
Behavioral traits, genes and, 10
Behavior Rating Schedules, 74
Better Baby Conferences, 315
Binet-Simon scale, 3
Binet tests, 53–58
  brain injury and, 114
  interpretation of, 56–58
  M.A. defined, 55
  ratio, 48
  and school retardation, 152
Binet tests—(*Continued*)
  scores, interpretation of psychological tests in relation to, 68–70
    See also I.Q.
Birth injuries, effects of, 11
Bladder control, 23
    See also Enuresis
Blind spot, 428
Blindness, 430, 438–439
  causes of, 439
  educational achievement and, 445
  intelligence and, 443–445
  personality and, 447–451
  and psychological characteristics, 439–441
Boredom, and fantasy, 269
Bowel control, establishing of, 23
Boy Scouts, and juvenile delinquency, 357
Braille, 446, 449
Brain, injury, and mental deficiency, 113–115; and mental organization, 495–496; and personality, 496
  lesions, 493
  pathology, general, 492–495
Broken homes, and juvenile delinquency, 361–363, 371
Bupthalmos, 436
Burt-Binet tests, 502

C.A. (child's age) in intelligence tests, 55, 56, 69, 78
  and school retardation, 146–147
    See also I.Q.; M.A.
California Test of Personality, 75, 211
Cambridge-Somerville Youth Study, 343, 385
Cardiac conditions, 530–535
  defined, 531-532
  educational implications of, 535
  rheumatic fever, 531–535
Casuist Formboard, 63
CAT (Children's Apperception Test), 77, 538
Cattell Infant Intelligence Scale, 72, 440, 457, 522
Cerebral palsy, 7, 496
  distinguished from poliomyelitis, 515
  early growth and development of, 517–519
  etiology and incidence of, 515
  intelligence and learning in, 519–526
  types of, 515
Cerebrospinal meningitis, and mental deficiency, 115
Cerumen, in auditory defects, 453, 456
Chicago Boys' Court, 356
Chicago Recreation Commission, 368, 388

Child, normal, *see* Normal child
Child development, genetics and intrauterine influences on, 10–11
  normal, 9–42
  overall nature of, 9–13
  as series of changes, 12
  social influences on, 11
Childhood, defined, 12
  stages of, 11–13
Children's Apperception Test (CAT), 77, 538
Chromosomes, 10
Church, and juvenile delinquency, 367
Clark Revision of Thurstone Personality Schedule, 448
Clinical Psychological testing, 47–81
  cautions in use of, 50–51
  reaction to, 49
  subjective factors in, 51
Clinical psychology, areas of use of, 6
  defined, 1
  definition adopted by American Psychological Association, 2
  emphasis on individual in, 1, 4
  history of, 2–4
  problems and procedures in, 4–6
  scientific, 3
  as specialized aspect of applied psychology, 2
Cochlea, 452
Cognitive knowledge, 27
Community conditions, and juvenile delinquency, 366–370
Companions, and social development, 39
Computation, in arithmetic difficulties, 118
Concept Mastery Test, 206
Conditioning, 28
Conduct, disorders, 234
  measurements, 52, 73–77
  and school retardation, 148–149
Conference of Executives for the Deaf, 459
Conjunctiva, 428
Contributions to a Psychology of Blindness, 446
Cook County (Chicago) Juvenile Court, 3
Cöoperation, 36–37
Cöordination, development of, 18
Cornea, 428
Cornell-Coxe Performance Ability Scale, 68
Cortex, role of, 493
Corti, organ of, 453–454, 457
Counseling interview, and understanding of individual, 4
Creeping, median ages for, 19
Cretinism, 95
  described, 111–112
Crime, feeble-mindedness and, 105
  and mental deficiency, 117
    See also Juvenile delinquency
Cross-eyes, 436
Crying, in emotional development, 33
Culture pattern, and school retardation, 154–156

Dark, fear of, 250
  in sleeping problems, 294
Daydreaming, 267–268
  frustation and repression in, 269–270
Deafness, 458–482
  and defective speech, 409
  defined, 459
  early growth and development, 460–461
  educational achievement and, 475–481
  incidence of, 460
  intelligence and, 461–467
  I. Q. and, 468–472
  language development and, 467
  personality adjustment to, 478–482
Decibel, defined, 454–455
Delinquents, defective, case histories of, 122–126
Delinquent behavior, defined, 342
    See also Juvenile delinquency
Delinquent children, defined, 7
Developmental Diagnosis (Gesell), 71
Developmental Quotient (D.Q.), 71
Development, retardation in, and mental deficiency, 86
  schedules, 71
Diabetes, 536–538
Diagnosis, personality, 4–5
Diagnostic tests, 78
Dictionary of Education, 6
Diplopia, 436
Disability, and school retardation, 147–148
Discipline, inconsistency in, 317
  in problem behavior, 314–319
Disease, and mental deficiency, 95
Disobedience, 317
  correction of, 318–319
Dorbet family, case history, 122
D.Q. (Developmental Quotient), 71
Draw-a-Man test, 62–63, 467, 538
Dreaming, and problem behavior, 291–292
Drowsiness, in problem behavior, 293
Drunkenness, parental, in problem behavior, 361
Durrell-Sullivan Reading Achievement Test, 477
Dwarfism, 111–112
Dyslexia, 167

E.A. (Educational Age), 78
Eames eye test, 430, 432
Ear, structure and function of, 452–458
Eating habits, in problem behavior, 284
    See also Feeding problems
Economic status, and juvenile delinquency, 359–360
Educational achievement, blindness and, 445–446
  epilepsy and, 509–510
  hearing defects and, 475–481
  tests for, 52, 78–81
Educational age (E.A.), 78
Educational examination, in mental deficiency, 103–104
Educational Testing Service, 213
Educational Quotient (E.Q.), 78
Edwards family, 93
Elimination, reflex and voluntary control of, in infants and children, 22–23
Emotion, defined, 28–29
  development of, 28–35; avoidance-approach aspect, 31;
  in older children, 30–31; specialization in, 35
  disturbance in, and mental deficiency, 97
  outbursts of, in problem behavior, 260
  "pleasant," 34–35
Encephalitis, 293, 510–514
  defined, 510
  incidence of, 510–511
  intelligence and, 512
  and mental deficiency, 115
  symptoms, 511
Endocrine changes, 12
Enuresis, 295–303
  correction of, 300–303
  personality problems and, 297–299
Environment, manipulation of, 5
Epilepsy, 497–510
  defined, 497–498
  deterioration and, 499
  education and, 509–510
  etiology of, 498–499
  incidence of, 499
  intelligence and, 502–505
  personality and behavior in, 511–514
  seizure types, 499–500
  vocation and, 509–510
E.Q. (Educational Quotient), 78
Estropia, 436
Eustachian tube, 453
Eye, structure and function of, 428–437
    See also Vision; Visual
Eye movements, 429
  and reading skill, 165–166
Eye tests, 430
Exceptional children, defined, 6–7
    See also Gifted child
Exotropia, 436

Failures, school, percentage of, 144
  reasons for, 145
Family, role of, in juvenile delinquency, 357–366
  history, and mental deficiency, 106
Fantasy, and behavior problems, 267–271
  functions of, 269
F.B.I., 344, 390
Fear, correction of, 248–252
  desirable and undesirable, 246
  implanting of, by parents, 246
  nature of, in emotional development, 31
  origin of, 247
  and problem behavior, 241–252
  reassurance vs., 251
  in sleeping problems, 294
  and wakefulness, 290
Fear behavior, 31–32
Feeble-minded child, defined, 7, 86–90
  per capita cost of state institutions for, 134
  punishment of, early, 122
  segregation of, 134–136
  training of, 118 ff.
    See also Mental deficiency
Feeble-mindedness, 86–136
  laboratory studies of, 3
    See also Mental deficiency
Feeding, in child development, 21–22
  in problem behavior, 281–286; correction of, 285–286
Feelings, 29
Fels Parent Behavior Scales, 239
Fertility, exhaustion of, as cause of Mongolism, 110
Fibroplasia, retrolental, 438
Finger movements, 19
Five-Finger Formboard, 63
Ford Foundation, 211, 218
Formboards, 63–65
  in brain injury cases, 114
  scores, interpretation of, 65
Fovea, 428
Frustration, and aggression, 257–258
  anger and, 259
  fantasy and, 269–270
  jealousy and, 261–262
  and problem behavior, 241, 243, 257–259, 261–262, 269–270

Gallaudet College for the Deaf, 476
Gang, defined, 356
    See also Juvenile delinquency
Genes, 10
German measles, 530
Gesell schedules, 440
Ghosts, fear of, 246, 250
G.I. Bill of Rights, 208
Gifted child, 197–228
  acceleration of, 224
  antagonism toward, 204
  Catholic, 220
  case histories of, 200–202, 221–223
  definition and characteristics of, 197–209
  education of, 224–228
  "enrichment" of, 224–225
  high standards set by, 211
  home environment and, 209
  identification of, 199–206, 221
  intellectual, physical, social, and emotional tendencies of, 205–206
  I.Q. and, 197, 210, 218, 226
  Jewish, 220
  and national groups, 218–219
  Negroes and, 220
  parental guidance and, 214
  Protestant, 220
  scholarships and, 208
  segregation of, 225–228
  self-expression and, 225
  social adjustment of, 209–215
  society's need for, 206–209
  special schools for, 218, 225, 226, 227, 441
  special problems of, 198–199
  study of 750 men on achievement, 216–218
  and teacher relationship, 199
  types of families of, 219
  under-achievement of, 215–223
Glandular dysfunction, Mongolism and, 110
Gonadal endocrine changes, 12
Grand mal, 500
Group reflex, 18
Gray oral reading test, 152
Growth, biological processes of, and genes, 10
  body-size increase in, 15
  height-weight curves in, 13–14
  heredity-environment factors in, 14

Habit, disorders, 234
  interferences, and spelling difficulty, 180–181
  and school retardation, 149
Handicapped child, cultural and social status of, 426–427
  statistics on, 425–426
    See also Sensory defects
Handwriting difficulty, 184–187
  mirror writing, 186–187
  table of writing defects and causes, 185
Hard-of-hearing, defined, 459
  intelligence and, 464–466
    See also Deafness; Ear; Hearing
Hayes-Binet Intelligence Tests, 443-444
Healy Pictorial Completion Test, 66, 68
Hearing, impairment, 458–460
  loss, 456
  physiology and psychology of, 451–458
    See also Auditory defects
Heart conditions, *see* Cardiac conditions
Height, norms of, 15–17
Heredity, mechanism of, 10
  mental deficiency and, 91–94
Heterosexual problems, in problem behavior, 309–311
Home, role of, in school retardation, 154–156
Homosexuality, in children, 312
  definition and incidence of, 311
  in problem behavior, 311–314; correction of, 313–314
Hostility, and problem behavior, 256–267
Hostility problems, correction of, 263–267
Hydrocephalus, described, 112–113
Hyperopia, 435
Hypothyroidism, and mental deficiency, 95, 111–112

Idiocy, defined, 88–89, 99
Idiot, 97
  definition and limitations of, 99
  high-grade, 99
  speech defects and, 395
Illinois Association for Criminal Justice, 389
Illinois Institute for Juvenile Research, 275
Imbecile, 88, 97
  low-grade, 99
Imbecility, defined, 89
Imitation, 36
Immaturity, and mental deficiency, 86–87
Impulse, 29
Inadequacy feelings, and problem behavior, 275–279
Indiana Boys' School, 354
Indiana School for the Deaf, 466
Infancy, emotional behavior in, 29–30
  period, defined, 12

Infant, feeding and reflex sucking movements of, 21–22
  as immature organism, 11
  motor development in, 19–21
Inferiority feelings, home environment and, 278–279
  in problem behavior, 275–279
  signs suggestive of, 276–277
Ink-blot tests, *see* Rorschach test
Intelligence, average growth in, 26
  blindness and, 445–447
  cerebral palsy and, 519–526
  deafness and, 461–467
  definitions and growth characteristics of, 24–26
  epilepsy and, 502–505
  poliomyelitis and, 527–528
  Quotient (I.Q.), *see* I.Q.
  tests, 24–25, 52–53; and arithmetic difficulty, 189; and spelling ability, 178
  visual impairment and, 441–442
Interim Hayes-Binet Test, 443–444
International Phonetic Alphabet, 400
Intrauterine life and influences, 9–10
  physical growth during, 14
Introversion, 277
Iowa Silent Reading Test, 477
I.Q., in Binet tests, 55–58
  blindness and, 443–445
  deafness and, 464–467, 468–472
  defined, 48–49
  in drawing tests, 63
  and gifted child, 197, 210, 218, 226
  and interpretation of tests and scales, 68–70
  and juvenile delinquency, 349–351
  and mental deficiency, 88–89, 96–99, 103, 114, 118, 121, 131
  in negative behavior, 315
  in poliomyelitis, 527–528
  and school retardation, 142, 146–147
  and speech defects, 395
  in Wechsler Adult Intelligence Scale, 59
    See also Intelligence

Jacksonian epilepsy, 501
Jealousy, defined, 261
  in problem behavior, 261–263
Judge Baker Foundation Clinic, 356, 385
Jukes family, 91, 93
Juvenile courts, 379–381
Juvenile delinquency, 341–387
  age at onset of, 357
  broken homes and, 361–363, 371
  case histories in, 372–379
  causes of, 370–379
Juvenile delinquency—(*Continued*)
  characteristics of, 347–370
  child's role in, 348–357
  church influences in, 367
  community and social conditions influencing, 366–370
  companionship in, 355–357
  defined, 341
  economic status and, 359–360
  education and, 353–354
  family relationships and, 363–364
  frequency and type of offenses in, 346–347
  group or club activities in, 356–357
  incidence of, 344–346
  institutions for treatment of, 381–383
  intelligence of child and, 349–351
  I.Q. and, 349–351
  juvenile courts and, 379–381
  moral standards and, 360–361
  nationality and race in, 357–359
  negative attitudes toward school in, 354
  neighborhood influences on, 368–370
  number of delinquents, 343–344
  parent-child attitudes in, 364–365
  physical condition of child and, 348–349
  poverty and, 369
  probation system in, 381
  psychological clinic in treatment of, 385–387
  role of family in, 357–366
  sexual habits and, 352
  supervised recreation and, 368
  temperamental and emotional factors in, 351–352
  total number of delinquency cases, 1950–1952, 346
  treatment of, 379–387
  vocational history in, 355

Kallikak family, 91–92
Keystone visual survey tests, 430, 432
Knox Cube or Cube Imitation Test, 67
Kohlstedt Test of Introversion-Extroversion, 449
Kohs Block Design Test, 67–68
Kuder Preference Record, 80
Kuhlmann-Anderson Intelligence Tests, 199
Kuhlmann Tests of Mental Development, 71

Language abilities, relation between, 160–162
Language development, and hearing defects, 467–473
Learning, cerebral palsy and, 519–526
  definition and growth characteristics of, 27–28

Learning—(*Continued*)
  four types of, 28
  heredity and environment factors in, 25
Left-handedness, 187
  and stuttering, 409
Lisping, 400
Locomotion, development of, 19–20
Love, and problem behavior, 239

M.A. (mental age) in Binet tests, defined, 55
  and educational quotient, 78
  and mental deficiency, 88–89
  and school retardation, 147
Macrocephalus, and mental deficiency, 113
Macula lutea, 428
Maddox rod, in visual tests, 432
Manipulation, defined, 18
Markle Fund, 208
Massachusetts vision test, 301, 432
Masturbation, 254, 258, 303–309
  causes of, 306–307
  correction of, 308–309
  definition and occurrence of, 303–304
  infant, 305
  modern views on, 307–308
  reported incidence of, 304
  types of, 305
Matheson Commission, 510, 346
Maturation, defined, 15–16
  heredity and environmental factors in, 11
  part played by at early ages, 30
Maxfield-Fjeld Adaptation of Vineland Social Maturity Scale, 440
Maze tests, 60–62
  interpretation of, 69–70
Measuring Intelligence, 54
Memorization, 28
Memory, span, defined, 180
  and spelling difficulty, 180
Mental abilities, development of, 23 ff.
Mental age (M.A.), 55, 78, 88–89, 147
  in Binet tests, 55–58
Mental defectives, *see* Feeble-minded; Mental deficiency; Subnormal child
Mental deficiency, 86–136
  brain injury and, 113–115
  causes of, 90–97
  clinical experience as requisite in diagnosis of, 100
  congenital causes of, 94–95
  cretinism and, 111–112
  crime and, 117
  defined, 86–90
  degree of, 89–90
  developmental history of, 105
Mental deficiency—(*Continued*)
  diagnosis of, 97–107, 115–116
  educational examination and, 103–104
  emotional disturbance and, 97
  employment of subnormals, 129
  endogenous type, 90
  environmental lacks and, 90
  family history and, 106
  genetic or hereditary factors in, 90–94
  hydrocephalus and, 112–113
  incurable, 117
  institutionalization of idiots and others, 135–136
  I.Q. and M.A. in, 88–89
  management of, 115–121
  medical diagnosis for idiots and imbeciles, 99
  microcephalus and macrocephalus, 113
  Mongolism, 108–111
  physical examination in, 106–107
  postnatal causes of, 95
  and pseudofeeble-mindedness, 96–97
  psychometric examination in, 101–103
  psychotherapy and, 116–117
  segregation and, 134–136
  sexual promiscuity and, 125–126
  social adaptation and, 127–134
  social control of feeble-minded and, 121–136
  social history and, 104–105
  social maladjustments and, 122–126
  special education for subnormal children, 120–121
  special types of, 108–115
  spontaneous acceleration of, 96
  state institutions for mental defectives, 134–135
Mental Health Analysis blank, 128
Mental organization, brain injury and, 495–496
Merrill-Palmer Tests, 72–73, 522
Metropolitan Achievement Tests, 182
Michigan Picture Test, 538
Microcephaly, 94
  and mental deficiency, 113
Micturition, lack of voluntary control of, 295–303
    See also Enuresis
Midcentury White House Conference, 394
    See also White House Conference on Child Health and Protection
Military services, case studies in, 6
  personnel screening in, 3
Minnesota Multiphasic Personality Inventory, 449, 533

Mongolism, cephalic index in, 112
  description of, 108–111
  mental deficiency and, 91, 95
Monroe silent reading test, 152
Moral standards, and juvenile delinquency, 360–361
Moron, 88, 97
Moronity, defined, 89–90
Motor defects, and reading skill, 165–166
  and spelling difficulty, 179–180
Motor skill, 26–27
  development of, in infancy, 20
Murray's Thematic Apperception Test, 75
Muscle, maturation of, and behavioral forms, 18
Music, special talent for, 26, 214
Myopia, 435
Myers Mental Measure, 114
Myoclonic jerks, 501
Myxedema, 111

Nagging, and problem behavior, 241
Nail biting, 254–255
Narcolepsy, 293
National Committee for Mental Hygiene, 3
National Education Association, Educational Policies Commission, 213
National Health Survey, 456
National Intelligence Test, 466
National Merit Scholarship Foundation, 208
National Research Council, Subcommittee on Ophthalmology, 438
National Society for Study of Education, 195
Negative behavior, *see* Negativism
Negativism, 36–37
  correction in, 318–319
  parental inconsistency in, 317
  prepubescent and adolescent, 316
  in problem behavior, 314–319
Negroes, and juvenile delinquency, 369
  racial attitudes toward, 40–41
Neighborhood, influence of, in juvenile delinquency, 368–370
Neonate period, in child development, 12
Nerve, maturation of, and behavior forms, 18
"Nervous" habits, correction of, 255–256
  in problem behavior, 252–256
Neural pathology, and birth injuries, 10
Neurological disorders, 492–540
  brain pathology and, 492–493
  clinical aspects of, 497
  epilepsy, 497–510
  mental deficiency and, 106
Neuromuscular maturation, 18, 28
  in emotional development, 34
Neurophrenia, 493
Neurotic traits, 234
New Jersey Cerebral Palsy Study, 521
New Jersey Juvenile Delinquency Commission, 348, 353–354, 389
New Revised Stanford-Binet Tests of Intelligence, 53
New York (State) Crime Commission, 389
New York State Training School, 352
Nightmares and night terrors, problem behavior and, 292–293, 295
Noises, in fear behavior, 31–32
Noncöoperation, 37
Normal child, defined, 7, 9
  development of, 9–42
Normals, borderline or subcultural, 90
Northwestern University, Children's Hearing and Aphasia Clinic, 417
Numeration, and arithmetic disability, 187
Nystagmus, 436

Oculogyric crisis, 511
Oregon Plan, for education of blind, 446
Organismic dysfunction, and mental deficiency, 93
Orgasm, in children, 305
Orthopedic impairments, 514–530
  cerebral palsy and, 514–526
  defined, 514
Otis Quick-scoring Mental Ability Test, 152, 477
Overprotection, and problem behavior, 239–240
Overt responses, 29

Parental attitudes, changing of, 5
  handicapped children and, 426
  in juvenile delinquency, 364–365
  in problem behavior, 238–239
Parkinsonism, 511
Passaic (N.J.) Children's Bureau, 348
Pathology, congenital, and intelligence, 25
Peeping, in sex problems, 310
Peer status, in social development, 38
Perception, 29
Perfectionistic behavior, 277
Performance scales, 67–68
Performance tests, 60
Perkins Institution and Massachusetts School for the Blind, 445–446
Personal adjustment, and reading skill, 169–170
Personal Data Sheets, Woodworth's, 74
Personality, and blindness, 447–451
  and deafness, 478–482
  and epilepsy, 505–509
  manipulation of, 5

Personality—(*Continued*)
  measurements of, 52, 73–77
  and neurological disabilities, 505–509
  and partial sight, 447
  and poliomyelitis, 528
  and school retardation, 148–149
  sixteen criteria for, 41–42
  in social development, 41–42
  tests, catalogs of, 74
Personality Inventory (Bernreuter), 74
Personnel screening, 3
Petit mal, epilepsy, 501
Petting, and sex problems, 311
Philadelphia Child Guidance Clinic, 275
Phonetics, 397–400
Physical disabilities, 492–540
  and inferiority feelings, 275
Pica, 284
Picture Completion Tests, 65
Pinna, 452
Pintner Intelligence Test, 465
Pintner Non-Language Mental Test, 465–466
Pintner-Patterson Performance Scale, 64, 67
Pintner Rapid Survey test, 464
Play therapy, diagnostic function of, 4
"Pleasant" emotions, 34–35
Polioencephalitis, 528
Poliomyelitis, 526–530
Porteus Maze Test, 60–62, 67–68, 69, 71, 107, 114
Poverty, and juvenile delinquency, 369
Preadolescence, defined, 12
Preference Record, 80
Pregnancy disorders, and mental deficiency, 94–95
Preschool age, defined, 12
Pressey Interest Attitude Tests, 352
Probation, in juvenile delinquency, 381
Problem behavior, 232-340
  aggression and hostility in, 256-267
  anger in, 259–261
  avoidance problems and, 267–279
  background of, 237–241
  classification of behavior problems, 232–237
  destructiveness in, 263
  and emotional control, 233
  enuresis and, 295–303
  feeding problems in, 281–286
  heterosexual and homosexual problems in, 309–314
  and home environment, 238
  illustrative case histories, 320–331
  jealousy and, 261–263
  and marital relations of parents, 238
Problem behavior—(*Continued*)
  masturbation and, 303–309
  in mental deficiency, 104 ff.
  multiple causation principle in, 233
  negativism and discipline in, 314–319
  "nervous" habits and, 252–256
  parents' awareness of, 237
  Primary Behavior Disorders and, 234
  psychoneurosis and psychosis in, 319–320
  sex problems in, 303–314
  sleep problems in, 286-295
  tension and, 253
Problem solving, 28
  in arithmetic, 188
Pseudofeeble-mindedness, 90, 96–97
Psychobiological insufficiency, and mental deficiency, 90
Psychological clinic, beginnings of, 2
Psychological testing, clinical, 47–81
Psychological tests, 51–53, 67–70
Psychology, applied, 2
  clinical, *see* Clinical psychology
  scientific, 3
  separation of, from philosophy, 1
Psychoneurosis, in children, 319–320
Psychosis, in children, 319–320
Psychotherapy, and mental deficiency, 116–117
Puberty, 12
Public Health services, clinical psychology in, 6
Punishment, avoidance of, in disobedience and negative behavior, 319

Quarreling, 36
Questionnaire, in personality and conduct measurements, 73
"Quiz" programs, and gifted children, 209

Rating scale, in personality and conduct measurements, 73
Reaching movements, 19
Reading skill, auditory defects and, 164–165
  diagnosis of factors causing disability in, 172–175
  eye movements and, 165–166
  foreign language difficulties and, 172
  intelligence and, 163–164
  kinds of, 162
  in mental deficiency, 104
  motor defects and, 165–166
  perception and, 167–169
  personal adjustment and, 169–170
  remedial treatment for defects in, 175–176
  school attendance and, 171
  sensory factors in, 164–165

Reading skill—(*Continued*)
  specific disabilities and diagnosis of, 172–175
  speech defects and, 166–167
  teacher's ability and, 170–171
  training and, 170–172
  and unfamiliar home conditions, 171–172
  visual defects and, 164
Recreation, supervised, and juvenile delinquency, 368
Rejection, and problem behavior, 239–240
Resistance, 37
Responses, overt, 29
Restlessness, in sleeping problems, 295
Retardation, developmental, and mental deficiency, 86
  school, *see* School retardation
Retarded child, defined, 142
  and juvenile delinquency, 353
  performance ability of, 118
  statistics on handicaps or impairment of, 425–426
    See also Handicapped child; School retardation; Subnormal child
Retina, 428
Retinitis pigmentosa, 436
Rh blood factor, and mental deficiency, 95
Rheumatic fever, 531–535
Rhythmic disorders, in speech defects, 406–416
    See also Stuttering
Rivalry, 36
Robinson-Hall silent reading test, 168
Rorschach test, 75–77
  in brain injuries, 496
  in diabetes, 533, 538
  in feeble-mindedness, 103
  and gifted children, 213
  in juvenile delinquency, 351
  in rheumatic fever, 533
Rosenzweig Picture-Frustration Study, 538
Runaways, and juvenile delinquency, 363

Scales, performance, 67–68
Scholarships, and gifted children, 208
School-changing, reading skill and, 171
  and school retardation, 150–154
School failures, reasons for, 145
School retardation, absence from school and, 154
  causes, of, 156
  defective physical condition and, 147–148
  defined, 142
  habits of work and, 149
  I.Q. and, 146
  low economic conditions and, 155
School retardation—(*Continued*)
  M.A. and, 147
  management of, 156–157
  and parents' attitude toward school, 156
  role of child in, 146–149
  role of home in, 154–156
  role of school in, 150–154
  weak preparation and, 154
School subjects, arithmetic difficulties and, 187–193
  handwriting difficulties and, 184–187
  reading difficulties and, 162–176
  specific disabilities in, 159–193
  spelling difficulties and, 177–184
Sclera, 428
S.D. (standard deviation) scores, 73
Seashore Measure of Musical Talent, 79
Security, and problem behavior, 239
Segregation, of feeble-minded, 134-136
Self-assertiveness, 277
Self-consciousness, 276
Self-experimentation, in children, 310-311
Sensorimotor skill, 28
Sensory defects, 425–482
  auditory, 451–482
  visual, 427–451
Separation anxiety, in sleeping problems, 295
Sex, child's observation of intercourse, 310
  Heterosexual problems, 309–311
  homosexual problems, 312–314
  intercourse, in adolescents, 311
  masturbation, 303–309
  promiscuity and feeble-mindedness, 125-126
  topics, at home, 310
Shyness, 271–274
Siamese twins, 10
Sight, partial, 437–439
  and educational achievement, 445
  and intelligence level, 441–442
  and personality, 447–451
    See also Vision
Sleep, abnormal, 293
  average daily hours for children, 20–21
  in problem behavior, 286–295; correction of, 293–295
  restless, and problem behavior, 291
Snellen Visual Acuity Test Chart, 430–432
Social adaptation, and mental deficiency, 127–134
Social approval seeking, 36
Social attitudes, in social development, 40–41
Social behavior, age changes in, 36–38
Social behavior patterns, variety of, 36

Social conditions, and juvenile delinquency, 366–370
Social conflicts, as anger-provoking stimuli, 33
Social control, in mental deficiency and feeble-mindedness, 121–136
Social development, 35–41
  age changes and, 36–37
  peer status in, 38–39
  personality and, 41–42
  social participation and, 39–40
Social groups, 36
Social history, and mental deficiency, 104–105
Social incompetence, and mental deficiency, 86
Social influence, and infant development, 11
Social maladjustments, among mentally deficient, 122–126
Social Maturity Scale, Vineland, *see* Vineland Social Maturity Scale
Social measures, 53, 80–81
Social participation, and social development, 39–40
Social skills, in social development, 38
Social stimulations, 36
Solitary activity, in problem behavior, 272
  in play, 37
Spastic paralysis, 516
Speech, acquisition of, 392
  definition of, 391
  delayed, 394–397
  development of, 391–394
  production of vowels and consonants in, 397–400
Speech defects and difficulties, 7, 234, 391–419
  aphasia, 417–419
  articulatory, 397–406
  and defective hearing, 396, 404
  examination for, 401–402
  faulty training and, 403
  incidence of, 393–394
  I.Q. and, 395
  reading skill and, 166–167
  rhythmic disorders and, 406–416
  speech development and, 391–394
  stuttering and, 406–416
  tongue-tie, 404
  voice disorders and, 416–417
    See also Articulatory defects
Speech therapy, 405
Spelling difficulty, 176–184
  causes of, 177–178
  diagnosis of, 181–182
  emotional factors in, 181
Spelling difficulty—(*Continued*)
  habit interferences and, 180–181
  intelligence and, 178
  lapses and idiosyncrasies in, 181
  list of 100 words for diagnostic use in, 183
  memory and, 180
  motor defects and, 179–180
  pronunciation and, 184
  remedial treatment for, 182–184
  visual defects and, 178–179
Stammering, *see* Stuttering
Standard deviation (S. D.) scores, 73
Stanford Achievement Test, 182, 475
Stanford-Binet tests, 53–58
  in cerebral palsy, 522
  deafness and, 464
  young children and, 71
    See also Binet tests; I.Q.
Standford Scientific Aptitude Test, 79
Stereotypias, 289
Stimulation and response pattern, 35
Strabismus, 436
Strong Vocational Interest Blank, 80
Stuttering, 406–416
  etiology of, 410–413
  incidence of, 409
  nature and causes of, 410–413
  therapy for, 413–416
Subnormal child, classroom instruction of, 119, 120–121
  employment of, 129
    See also Feeble-minded; Idiot; Imbecile; Mental deficiency
Sucking movements, in infant, 22
Superiority feelings, 277
Sympathy, 36
Syndrome, in brain pathology, 493–495
Syphilis, 10
  mental deficiency and, 94, 115
Systemic disabilities, 530–538
  allergic disturbances, 539–540
  cardiac conditions, 530–535
  diabetes, 536–538

TAT (Thematic Apperception Test), 75, 77, 103, 212–213
Taylor Anxiety Scale, 533
Teeth, maturation of, in infants and children, 22
Temper tantrums, 33, 35, 234, 259, 261, 352
Tension, and anxiety, in problem behavior, 253–254
  and masturbation, 307
Test of Personality Adjustment (Rogers), 75

Tests, in behavior appraisal, 4
  psychological, *see* Clinical psychological testing; Psychological tests
    See also specific tests listed
Thematic Apperception Test (TAT), 75, 77, 103, 212–213
Thorndike-McCall reading scale, 152
Thumbsucking, 252, 254, 298
Thurstone Personality Schedule, for blind, 448
Thyroxin, 111
Tics, and problem behavior, 253
Timidity, 277
Toilet, habits, and parents' attitude toward, 297
  training, in problem behavior, 295–303
    See also Enuresis
Tongue-tie, 404
Trabue language-completion test, 152
Twitchell-Allen Three-Dimensional Apperception Test, 449
Tympanic membrane, 453

United States, Childrens' Bureau, 358, 363 390
  National Institute of Mental Health, 134
  Office of Vocational Rehabilitation, 134
University of Minnesota, Institute of Child Welfare, 287
University of Pittsburgh Speech Clinic, 396, 404
Urinary incontinence, 295–303

Verbal behavior, as element of anger, 33–34
Verbal scales, 53
Verbal-Spatial-Mathematical Test, 213
Verbal tests, chief criticism of, 60
Veterans' Administration, 3, 6
Vineland Social Maturity Scale, 38, 80–81 96, 105, 440
Vineland (N. J.) Training School, 3, 91
Visceral responses, 30–31
Vision, binocular, 430
  defects and impairment, 433–439; intelligence and, 441–445; psychological characteristics and, 439–451; reading skill and, 164; spelling difficulty and, 178–179; symptoms of, 433–434; vocational guidance and, 451
  measurement of acuity, 430–433
  partial, *see* Sight, partial
  physiology of, 427–439
Visual tests, 430
Vitreous humor, 428–429
Vocabulary studies, 177
Vocational Interest blank, 80

WAIS (Wechsler Adult Intelligence Scale), 58–59
Wakefulness, 280–287
  causes of, 288–290
  fear and, 290
    See also Sleep problems
Wallin Peg Board, 63
Wechsler Adult Intelligence Scale (WAIS), 58–59
Wechsler-Bellevue Intelligence Scale, 58, 221, 444
Wechsler Intelligence Scale for Children, 59
Weight, norms of, 15–17
White House Conference on Child Health and Protection, 281, 340, 393, 424, 458
Whittier State School, 353–354
"Will to power," 275
Withdrawal, in problem behavior, 271–274
Witmer formboard, 49–50, 69
Woodworth's Personal Data Sheets, 74
Word blindness, 167, 418
Word deafness, 418
World War I, determining neurotic tendencies in soldiers during, 74
World War II, activities of psychologists during and since, 2
  changes in juvenile delinquency incidence during, 367
Writing defects, *see* Handwriting difficulty

Y.M.C.A., and juvenile delinquency, 357

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